

Copyright, 1919, by American Carpenter and Builder Company.



Formerly AMERICAN CARPENTER AND BUILDER

Member of the Audit Bureau of Circulations
Circulation Audited and Verified March, 1919

American Builder

Entered as second-class matter July 1, 1906, at the postoffice at Chicago, Ill., under the Act of Congress of March 3, 1879.

Published on the first day of each month by

AMERICAN CARPENTER AND BUILDER COMPANY

Publication Offices:

Radford Building, 1827 Prairie Ave., Chicago

EASTERN OFFICE: 261 BROADWAY, NEW YORK CITY

ADVERTISING RATES

Furnished on application. Advertising forms close on the 15th of the month preceding date of publication.

SUBSCRIPTION RATES

One year, \$2.00; six months, \$1.00; single copies, 25 cents. Special rates for two or more subscriptions when received together, to be sent to different addresses—Two subscriptions, \$1.75 each; three subscriptions, \$1.50 each; five subscriptions, \$1.25 each; ten or more subscriptions, \$1.00 each. Extra postage to Canada, 50 cents; to foreign countries, \$1.00.

PROTECTION FOR OUR READERS

The publishers of the AMERICAN BUILDER reserve the right to decline any advertising they believe is detrimental to the interests of its readers; to edit advertising copy and to change or eliminate any statements that reflect injuriously or cast discredit upon other building products, machinery, equipment, supplies or tools.

Be sure in writing to advertisers to say: "I saw your advertisement in the AMERICAN BUILDER."

EDITORIAL DEPARTMENT

WILLIAM A. RADFORD, *Editor-in-Chief.*

BERNARD L. JOHNSON, B. S., *Editor.*

J. D. EDDY	WM. REUTHER	} Associate Editors
Y. K. SMITH	A. W. WOODS	

BUSINESS DEPARTMENT

WM. A. RADFORD, *President and Treasurer.*

E. L. HATFIELD, *Vice-President and General Manager.*

ROLAND D. RADFORD, *Secretary.*

DELBERT W. SMITH	L. H. REICH	} Advertising Staff
C. R. W. EDGUMBE	E. B. WOLFROM	

VOL. XXVII

August, 1919

No. 5

Table of Contents

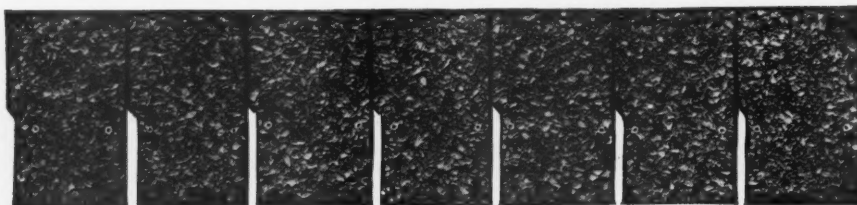
	Page		Page		Page
Contents for August.....	43	to a Bank?.....	83	How Can a Saw Table Handle Logs?.....	112
Short Talks by the Editor.....	45	Houses on Milford Shore Wrecked.....	85	The Strength of Hollow Clay Tile Walls.....	112
Advertise your Activities.....	45	A Pull-Out Table for the Small Kitchen.....	86	Mould Under Window Stool.....	112
Building Economically.....	45	Great Demand for Weather Strips Predicted.....	87	Asks Rule for Cutting Rafters.....	112
Creating Goodwill.....	45	Design for a Half-Monitor Poultry House.....	88	How to Determine Rise and Run of Rafters on a Gothic Roof.....	112
The Building Boom Is Here.....	46	Design for a Large Modern Dairy Barn.....	89	How to Get the Cut at the Break in a Gambrel Roof.....	114
Cartoon—"The Man of the Hour".....	47	Structural Tile Work for Houses, Farm Buildings, Stores, Garages, Etc.....	90	Motor Trucks in the Building Industry.....	116
California Finances Farm Building.....	48	Hollow Building Tile Construction.....	90	Trucks and Trailers for Lumber Haulage.....	116
Overhead Carrier System Used to Place Granite Blocks on Big Office Buildings.....	53	The Rural Building Renaissance.....	89	Auto Trailers and Semi-Trailers for Hauling Brick and Tile.....	122
Slate Roofs and How to Lay Them.....	54	Correspondence Department.....	102	Woman Uses Truck to Haul Lumber from Mill to Building Site.....	124
Brick and Terra Cotta Three-Flat Building.....	57	A Barn Remodeling Problem.....	102	Heavy Duty Trucks on Big Building Operations.....	128
Portfolio of Blue-Printed Beautiful Homes.....	58	Volunteers to Help the Brick Masons.....	102	How to Make a Profit on Re-roofing Jobs.....	130
Bungalow for Corner Lot.....	59	Klima Offers Suggestions for Vestibule to Make Barns Weather-Proof.....	102	Brick Construction for Modern Carpenters and Builders.....	134
An Attractive White Bungalow.....	60	Demand for Small, Economical Houses.....	104	Fine Brick Homes—How to Build with Brick.....	134
Unique Six-Room Brick House.....	61	How to Build Weather-Proof Porch Sash.....	104	Brick Veneer Walls.....	134
Six-Room Stucco House.....	62	How Can Inswinging Casement Windows Be Made Water-Tight?.....	104	Steel Square.....	140
How to Build Efficient, Economical Homes.....	63	Going Into the Building Business.....	104	Possibilities of the Steel Square.....	140
Artistic Floor Effects.....	64	Likes Plans for Two-Family Homes.....	104	How to Build to Prevent Damage by White Ants.....	144
Five-Room White Bungalow.....	65	Here's a Letter from the Contractors with Woodworking Shops.....	104	An Actual Incident with a Big Moral.....	144
A Home-like Dining Room.....	66	Wants to Build Portable Sawmill.....	108	Design for a Combination Cargo and Recreation Pier.....	146
Double House, Each of Five Rooms and Bath.....	67	A Weather-Proof Blind Stop.....	108	U. S. Department of Public Works Proposed.....	148
Model Home Designs.....	68	Plaster Cracks in Corners.....	108	Ready Mixed or Self-Mixed Paint?.....	148
Three Modest American Homes.....	68	Wants Light on the Use of the Steel Square.....	108	News of the Field.....	150
Fixtures for the Modern Store.....	70	Wants to Build Concrete Grain Bin.....	108	Aberthaw Opens Atlantic Office.....	150
All Sorts of Building Plans.....	71	Finds the American Builder Most Helpful.....	110	Oshkosh Mfg. Co. Announces Completion of New Service Plan.....	150
Design for Doctor's Office.....	71	Inlaid Table Top in Natural Colors of Hardwood.....	110	Tile Association Offers \$100 for Trade Mark.....	150
Design for a Public Garage.....	72	Questions About Thatched Roof.....	110	W. I. Alling Becomes Field Sales Manager for Oshkosh Mfg. Co.....	150
Design of Band Stand.....	73	Wants Rule for Stair Well Holes.....	110	Catalogs, Bulletins and Books Received.....	152
Design for a Two-Story, Four-Room Modern School Building.....	74	Would Like to See More about Cabinet Work.....	110		
"Baby Skyscraper" a Profitable Bank Investment.....	75	Plans to Build Water Power Sawmill.....	110		
A Plea for Better Nails.....	77	Seeks Information About Culverts.....	110		
Blue Prints of an Eight-room Colonial House.....	78	Reasons for Discoloration from Flues.....	110		
American Builder Building Plans.....	79-80-81-81	How to Make a Celluloid Glue.....	112		
Fred Beard Says: "Who'd a Thought You Could Sell Building Hardware		Hardware for Automobile Bodies and Tops.....	112		

Vulcanite

"FAMOUS for QUALITY"

Self Spacing Shingles
will
Protect your home

Notice the Shoulder of Protection



Just Lay Them Down and Nail--That's All There Is To It

The Shoulder of Protection keeps hot or cold air—rain, sleet, etc., from forcing its way thru the roof.

The Shoulder of Protection is also the Self-Spacing Device. Makes laying easy and rapid—thus saving time and money.

These Asphalt Shingles are surfaced with natural colored Red or Green Crushed Slate. Each rain washes away the accumulated dust—reviving perpetually the original rich colors.

Where these shingles are used the insurance rate is lowered—because they are fire-resisting.

Dealers—Contractors—Write us for further information. Our "Dealer Helps" will tell you how to increase your business.

Patent Vulcanite Roofing Co.

"FAMOUS for QUALITY"

Chicago

Cincinnati

Anderson, Ind.

Kansas City

Birmingham

San Francisco

Minneapolis

Franklin, O.

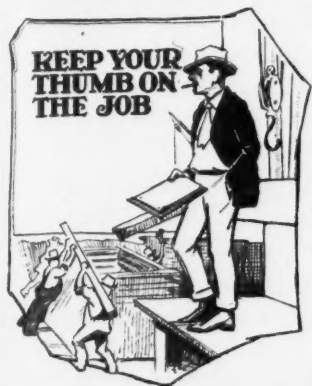
New York

Albany

Buffalo

Building Economically

IT costs money to build good buildings. There is no getting away from that fact. But in building good buildings, or poor buildings, for that matter, there are opportunities to save money by planning the work well. Handling the materials that go into a building is an expensive item of the cost. By careful



planning, successful contractors so put the materials on the building site that they can be put in place with the least amount of labor. With the materials at hand, the workmen waste no energy or time. There is no economy in having three men on a portion of the work where only two men can work efficiently.

The extra man is a dead loss to the contractor.

All thru the building operation, from excavation to roof, there are many chances to waste effort. The contractor who so arranges the work for his men and plans each day's activities so that there is little if any loss of time is the one who will profit by the building activity this year.

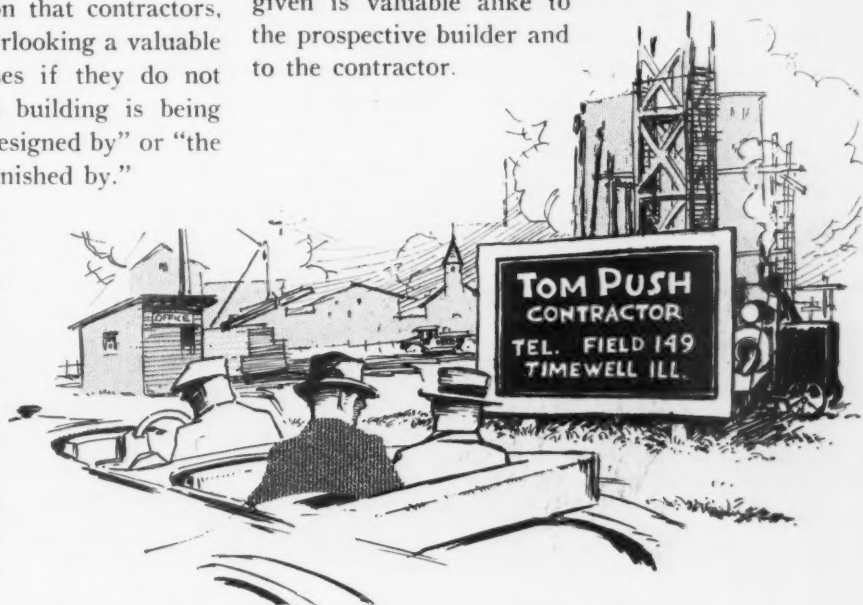


Advertise Your Activities

ANY unusual activity attracts the eye. But there is something about building activity that fascinates. Nothing will so challenge the attention of pedestrians as the work on an excavation, or the activity of masons or carpenters. Expert outdoor advertisers capitalize this very human trait in cities. The walls surrounding a new building in the business section are quickly covered with advertising signs, because the advertisers know that thousands of eyes will be attracted to this scene of activity.

Which leads up to the suggestion that contractors, architects and material men are overlooking a valuable chance to advertise their businesses if they do not announce to the public that "this building is being erected by," or "this building was designed by" or "the materials for this building were furnished by."

The job signs are the most valuable advertising those who have something to do with the building under construction can do. A contractor who has a number of buildings under way will quickly be recognized as a successful businessman. The persons who see this evidence of prosperity will be impressed and when any of them wants to build he will seek him out. The same is true of the architect and the material man.



All advertising is good, but some is more valuable than others. "On the Job" is a place where space cannot be bought, but it is free to the man who designed the building, the contractor who is erecting it and to the dealer who furnished the materials.



Creating Goodwill

"SERVICE" is a word that one comes in contact with daily. It is used to mean many things. But to the modern manufacturer and merchandizer it denotes the creation of goodwill for what either has for sale.



The contractor has for sale his knowledge of how to build a building. He knows a great deal about other things, altho he cannot get cash for this knowledge. But it will help him create goodwill, a thing that can well be lost once it is gained unless a continuous effort is made to retain it.

Advice, based on the knowledge of methods and materials the contractor has gained thru experience, is valuable to the prospective builder. The man who wants to build knows little about building. When he seeks to learn he is confronted with a problem that is hard to solve. In the end he will, if he is wise, ask and take the advice of the contractor, for in that way he will avoid many of the mistakes that others have made.

Giving this advice means nothing in dollars and cents to the contractor. But it does mean that he will be giving his client service. And that service will go far toward creating a satisfied customer—establishing goodwill for the contractor. Thoughtful advice, freely given is valuable alike to the prospective builder and to the contractor.

The Building Boom Is Here

AMOUNT OF BUSINESS BEING DONE BY ARCHITECTS, CONTRACTORS AND MATERIAL DEALERS IS SURPRISING EVEN THE MOST OPTIMISTIC

SEVERAL months ago there was considerable pessimism expressed regarding the prospect for an immediate resumption of building on anything like the scale that obtained before the war brought a cessation of activities. However, the amount of building now under construction and proposed has surprised even the most optimistic of the members of the building industry.

Just how great is this building activity is shown by the news items in the daily and weekly newspapers of the country. In one Ohio city, with a population of about 20,000, there were 76 building permits issued during the month of June. The permits were for 53 homes and 23 factory buildings and additions, garages and other buildings. The total figures for these buildings, as given in the permits, were \$282,410, but the actual cost will be a much greater sum. In the same edition of this paper were items regarding the erection of a new factory building to cost about \$100,000, and another \$100,000 addition to a well-established manufacturing plant. Neither of these was included in the list of permits.

Conditions Never Were Better

While this is only a single instance of what is happening in the building line in the smaller cities, it could be repeated many times, especially in the central western states. The cartoon on the following page does not exaggerate conditions. And it brings accurately to mind just how busy and prosperous the building contractors of the country are.

Now comes the question: "Who is getting the benefit of this activity?" Is it the contractor who sits back and waits for clients; or is it the man who goes out after new business? Is it the lumber and material dealer who believes that everyone knows that he sells these things and will come to him if they are wanted; or is it the live-wire, modern merchant who knows that the way to make sales is to

go after prospects? Is it the manufacturer who is content to take whatever business drifts into his plant; or is it the hustler who is driving the virtues of his product home to possible customers?

The prosperity of the one class and the fact that the other is only about two jumps ahead of the bankruptcy courts answers the questions.

Time of Greatest Opportunity for Builders

As has been told and retold, this is the time of greatest opportunity for every member of the building industry. Architects never before were so busy; contractors are only limited in the amount of building they are doing by the fact that the days are not long enough; and lumber and material dealers are disposing of their stocks as fast as they can get them and the manufacturers can produce them—that is, the aggressive men are, while the others are getting the overflow business.

Because of the great amount of private building now under construction and contracted for, the U. S. War Department has ordered a discontinuance of the work of promoting public building, so as not to cause a shortage of labor. This is a striking recognition of the prosperous condition of the building industry.

There is a most active demand for all sorts of buildings constructed of all sorts of materials. That is why the AMERICAN BUILDER is showing such a variety of building designs. Everywhere, because of the scarcity of homes, dwelling houses are in greatest demand. But business buildings and factories are running a close second. While some business men are alarmed by the increases in the cost of doing business, the great majority are going ahead with the determination and confidence that the demand is there and that it must be satisfied, no matter if costs are a little higher. They are reaping the profits.



Building Projects Such as This Are Numerous Now that Construction Work Is On In Earnest.



"THE MAN OF THE HOUR!"

California Finances Farm Building

COMFORTABLE HOMES AND GOOD BUILDINGS BEING ERECTED FOR SETTLERS ON STATE LAND AS MEANS OF ENCOURAGING AGRICULTURE

By Robert E. Jones

WHILE the movement toward state colonization of farm lands in this country is of first importance in staying the drift from country to city and in checking the menace of land tenantry, yet, to me, one of the most gratifying features is its effect on rural housing. The matter of properly housing farmers' families is a vital part of the larger problem of stopping the cityward trend of farmers' sons and daughters. Comfortable farm homes play a big part in making farm life pleasant.

In California the state colonization idea has been given a try-out. California has the first state financed colony in the United States. The idea was transplanted from Australia by Dr. Elwood Mead, professor of Rural Institutions in the University of California, president of the California Land Settlement board and advisor to Secretary of Interior Franklin K. Lane in connection with the national plan to provide farms for returned soldiers. The Durham Colony is a going farm settlement in the Golden State. It was established as an experiment and as a demonstration. So successful has it proven that today California expects to put \$11,000,000 into a continuance of the plan and a score of other states have passed similar laws.

Comfortable and Artistic Farm Homes

To the visitor, the most striking thing at Durham is the impression of comfortable and artistic farm homes, set in beautiful wooded sites. Farmers who apply for lands in the state colony are able to erect comfortable and substantial homes because the state advances to them a large part of the money necessary to pay bills and gives them 20 years, at five per cent interest, to

pay for the remainder. Such a plan would result in the building of real homes on all farms.

Not only does the state advance money to build the home, but it also provides plans and the services and advice of a farmstead engineer to aid in planning the particular kinds of a home the farmer may want and a convenient and attractive farmstead.

It may be readily understood that the practical advantages of state colonization, sketched herewith, ordinary as they may seem, undoubtedly must have a



Type of Small Home Erected for Durham Colonists.

wonderful stimulating effect on the building of better farm homes. Every farmer desires to house his family comfortably; to have a house which anyone would be proud to own and which his friends might admire. Add to this desire a means whereby it may be made true and you have the home.

California has seen a great deal of colonization projects. That is one reason why great stretches of countryside are cluttered up with half-finished houses, shacks and such. Private colonization proved a failure because the private companies underestimated the cost of improvements, or because they were so un-



View of a Settler's Home at Durham, Cal. This Farm Home Was Made Possible Thru the Financial Co-operation of the State, Which Helps the Settlers Acquire the Land and Construct the Buildings.

scrupulous as to take from unsuspecting buyers most of their money as first payment on raw land leaving nothing to live upon until crops came in or for improvements.

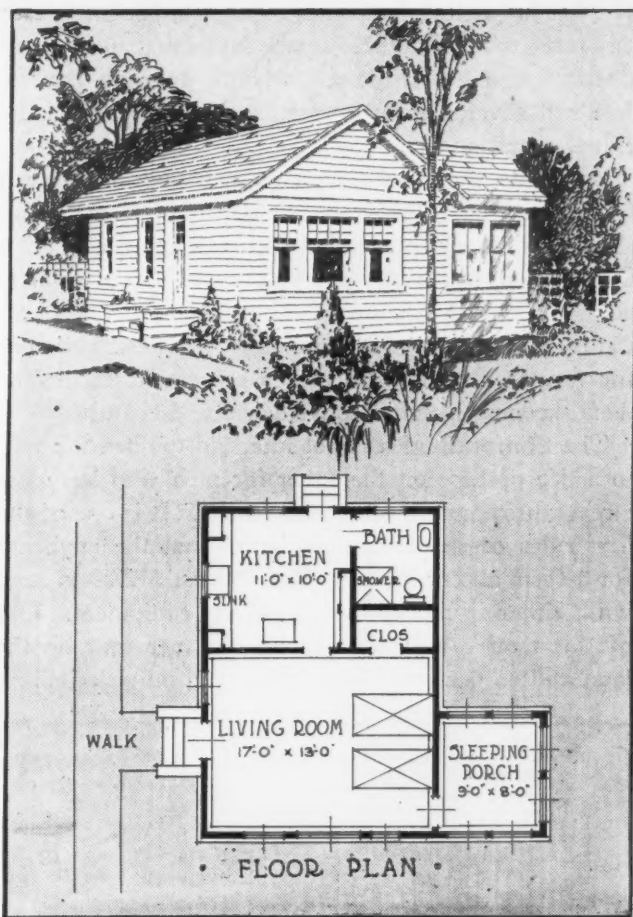
The state's unfortunate experience in this respect made it ripe for a radical change in policy. Dr. Mead came from Australia fresh from his experience as head of colonization work there and saw the opportunity to set on foot a real plan for the upbuilding of rural America. His country was in the vision, from the first, but he started with California. Former Governor Hiram W. Johnson, now a United States Senator, also caught the vision, and the California colonization idea was put over.

How the Farm Building is Financed

For the information of those who are unfamiliar with the financial features of the plan, I will touch upon the entire scheme briefly before going into the home building phase more thoroly.

The State Legislature appropriated \$250,000 to purchase a tract of 6,000 acres of land, to make such improvements as it could do cheaper than the individual and to finance settlers. The California Land Settlement board was appointed to administer the fund. It was provided that this board should subdivide the land as it saw fit and throw tracts open to such settlers as it should select from the applicants. The applicants would be permitted to have the land upon payment of five per cent of its value and 40 per cent of the value of improvements with from 20 to 40 years to pay off the remainder at five per cent interest.

A tract of 6,000 acres at Durham, formerly the farm of the late Leland Stanford, founder of Stanford University, was purchased. The state leveled a great deal of this land and planted perennial crops, such as alfalfa, and some wheat and barley. It built roads thru the tree groves, improved the irrigation works and set



Workman's Cottage and Floor Plan, Showing Interior Arrangement. Designed by Chester Cole, Architect.

aside a tract of 22 acres, studded with beautiful oak trees, as a community center.

California Architects Aid Plan

While all this work was going on Dr. Mead sent an invitation to architects thruout the state to submit some ideas on farm dwellings. The response was large and the first settler who came was able to form some idea



Another Type of Farm Home That Is Being Built for the California Settlers. This Is an Attractive Hip Roof Bungalow Type That Is Popular.

of what he wanted from these sketches. A little later the state architect's office became interested and Robert Backus, who has made a study of dwelling houses, designed several farm homes, keeping in mind individual requirements.

Dr. Mead then saw that it was possible to go even farther and he found a young city man who had an idea for a new profession—so far as the Pacific Coast is concerned. He was Mac E. Cook, who is now "Farmstead Engineer," attached to the California Land Settlement board. Cook not only designs homes for farmers, but he also makes layouts of farms for them, keeping in mind convenience and beauty.

The California idea is not intended to open the way to a life of ease on the farm for men who have not already proven their ability and thrift. It is one of the first rules of the California board that the applicant for a farm allotment must have at least \$1,500 to start with, either in money or in working equipment. Out of this money he must pay his five per cent on the land and 40 per cent on his home and other buildings,

machines, etc., all of which the state will help him to buy. Dr. Mead believes that the state should help those who help themselves.

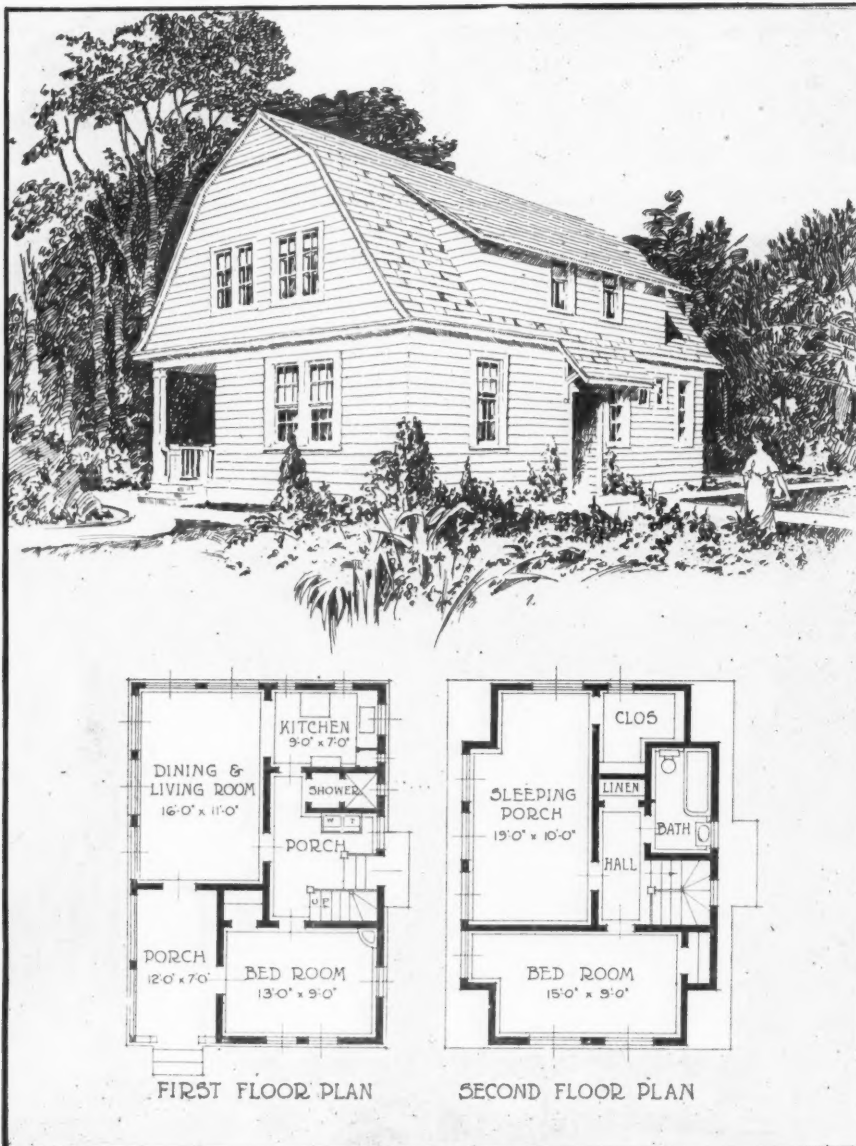
It may be said that this does not open the way for the worthy but moneyless young men to get a start. He is provided for in another way. In addition to real farm units a portion of the Durham tract was cut into farm workers' allotments of two acres each—enough room for a home and needed buildings, a family garden, chicken yards and space for a cow. It was assumed that worthy young men would apply for these allotments, build their homes and work for other settlers until such time as they had acquired sufficient funds to make the first payment on a farm. They could obtain an allotment on the payment of \$75 down with the remainder on the long-time plan. Under such an arrangement, they could pay for their "farmlets," with improvements, out of their wages at a less rate than rent for inferior accommodations in the city. Farm workers' homes are being built for \$800 each and plans for them are provided by the state board just as is the case with regular farmers.

When the colony was ready for settlement the Colonization board advertised that it had some 55 farms and 20 workers' allotments open for settlement. There were 2,000 applications for the farm units and 75 applications for the "farmlets." Of the 2,000 applicants, some 250 actually made out and filed requests for particular tracts and their average capital was twice as great as the required amount. The Colonization board was able to hand-pick its settlers. All of the workmen's allotments, likewise, were filed upon and some applicants were disappointed.

Building Progressed Rapidly

As soon as selections were definitely decided, the sound of the saw rang thru the oak trees of Durham Colony and today some 30 handsome farm homes, built with regard to the comfort and convenience of the family, are there. None of the shacks of old colonization days are to be seen and it looks as if a new era had dawned in rural home building. Most of the farm homes nestle in a clump of oak trees—the Settlement board experts, in laying out the colony, saw to it that each should have a shady home site if he desired it.

For those farmers who do not



Suggested Plan for a Farm Cottage, Furnished by the California Land Settlement Board to Prospective Settlers in the Durham Colony.

feel that they should put so much into their homes in the beginning, or who look to future increases in the family, Mr. Cook planned homes on the unit system. Such homes, while complete for the time being, are sufficiently flexible to permit of future additions, many of which the farmer can make himself during the slack time of the year.

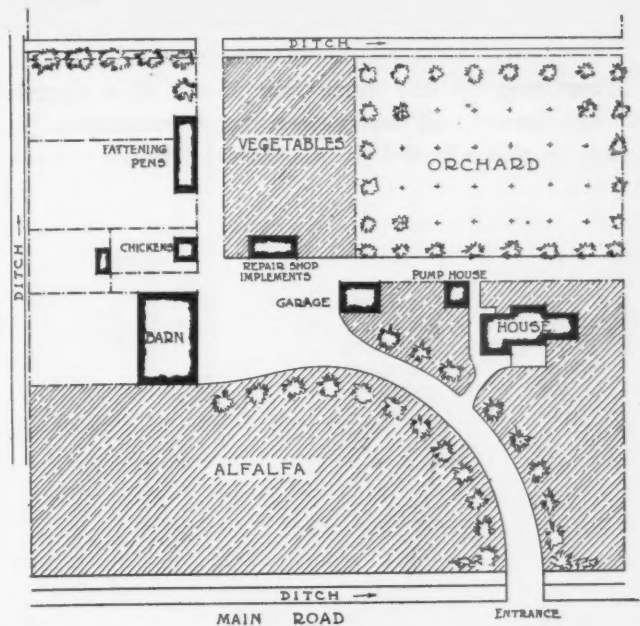
Convenience First Thought in Floor Plans

"Since the kitchen is the center of activities in the farm home, it should be given first consideration," said Mr. Cook in discussing his idea of the farm home. "It is impossible, in my opinion, to evolve a model kitchen—individual requirements always must be given thought. It should be so arranged, of course, as to keep at a minimum the number of steps the housewife must take; it should not be used as a thoroughfare to other rooms; it should have screened porches of practical value, not too small; it should command a view of the main road, driveway and farm buildings and should be so ventilated as to be free from excessive summer heat. Ample storage spaces, convenient to the kitchen, also, are necessary.

"While the dining room and dining porches must be equally accessible for serving from the kitchen, yet they must be so placed that it will not be necessary for men to pass thru the kitchen to reach them. Porches must be available for a variety of uses in case of emergency—as sleeping porches, dining porches, living porches, or, by the addition of sash, as separate rooms. The bath room should be accessible to all rooms without going thru bedrooms and from the exterior without it being necessary to enter the house proper."

All colony homes are equipped with modern plumbing just as city houses are. Tank houses to provide running water are part of the farmstead equipment and each house has its septic tank for sewage disposal.

Of the considerations which must govern in planning the farmstead, Cook mentions accessibility to fields and roads; economical distribution of roads and tillable



Typical Farmstead Layout Designed by the California Land Settlement Board.

land; elevation, drainage and water supply; general convenience, prevailing winds (the house must be kept as free of dust from the roads and from barnyard odors as possible); proper sunlight exposure in all rooms and buildings, and pleasing outlook.

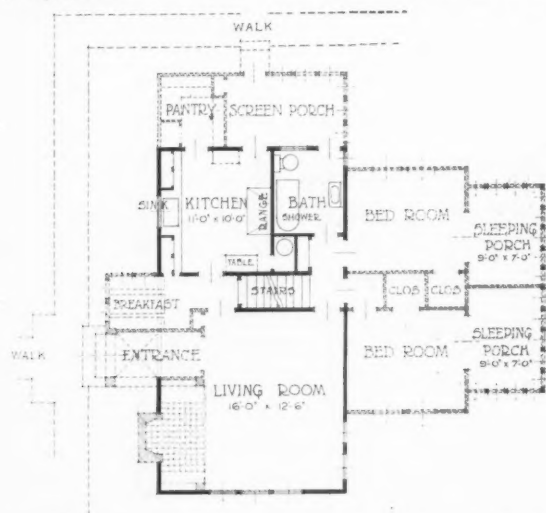
One who is familiar with the California plan, particularly with the success of the project at Durham, may realize what a tremendous effect it is going to have on better housing in rural America, once the idea gets spread over the entire country. If Durham is a sample of what will happen in the states that have decided to follow suit, then all new country that is colonized will be started right with comfortable dwellings instead of thrown-together shacks. The state simply will loan its credit on good security and the settler will be able to pay for his house while making his way instead of spending most of his life in a hovel and then, only when time comes for him to retire, be able to build a good home for himself and for his children.



One of the Many Settlers' Homes in the Durham, Cal., Farm Colony.

\$11,000,000 for Farm Improvement.

As stated, California has such confidence in the Durham plan for the upbuilding of the state that it has appropriated \$1,000,000 direct and has asked the people to vote a bond issue of \$10,000,000 to purchase



Side Elevation and Floor Plan of Settler's Cottage. Designed so That It May Be Added to from Time to Time, as Shown by the Dotted Lines in the Floor Plan.

more land for colonies and to finance the settlers there for their improvements, including homes. Other states have taken like action, among them being Oregon, Washington, Nevada, Colorado, Minnesota and Florida. These states have actually made appropriations to set on foot colonies similar to that in California. Other states have passed laws bearing on the matter, but have not yet made their appropriations.

In the meantime, while individual states have taken action, the National Congress has before it the Mondell bill, suggested by Secretary of Interior Franklyn K. Lane, to provide going farms for returning soldiers. This bill carries many of the provisions of the California act; in fact, it was framed upon the California law. Dr. Elwood Mead, the leader in the movement, has assisted in the work of preparing it right along. If it is passed by Congress and the money is appropriated, the National Government and states co-operatively will launch projects to provide improved farms for returned soldiers, which, like the individual efforts

of states, will have a wonderful effect upon building of better homes.

It is reconized, of course, that the home is the very foundation of our American life. "Home" and "house" are not always synonyms, as the student of etymology will tell you, but, practically, they mean very much the same. Discomfort in the home breeds discontent with the country; lack of sanitary conveniences brings disease which results in weakened health, lessened production and, finally, in failure upon the farm. Contentment with rural life is so closely tied up with good housing that anyone who has studied the subject must assert that the home-financing feature of the state plan of farm colonization is so far-reaching in its effect as to assure the success of the general plan.



Determining the Strength of Wood by Its Density

A comparatively simple method of estimating the strength properties of timber from the density, or specific gravity, is set forth in Bulletin 676 of the Department of Agriculture, "The Relation of the Shrinking and Strength Properties of Wood to Its Specific Gravity," which has just been issued. By the analysis of over 200,000 tests on wood of many species, the forest Products Laboratory of the Forest Service has definitely established the relations between the specific gravity of wood and its strength properties. Equations for these relations have been worked out and have been reduced to such simple form that they may be solved by arithmetic and without the use of higher mathematics.

In selecting timber for any given purpose, in comparing various species of wood, in estimating the properties of any particular wood, the equations should be found useful. To supplement the equations in determining in what way a species is exceptional and to what use it is best adapted there is a tabulation showing the variation from the average equation of each property of the various species tested. That variation from the average equation is often what determines the usefulness of a species for a special purpose.



The Main Thing

"My Poor Man," said the sympathetic prison visitor. "Do let me send you some cake."

"Thank you, mum. Dat would suit me fine."

"What kind would you prefer?"

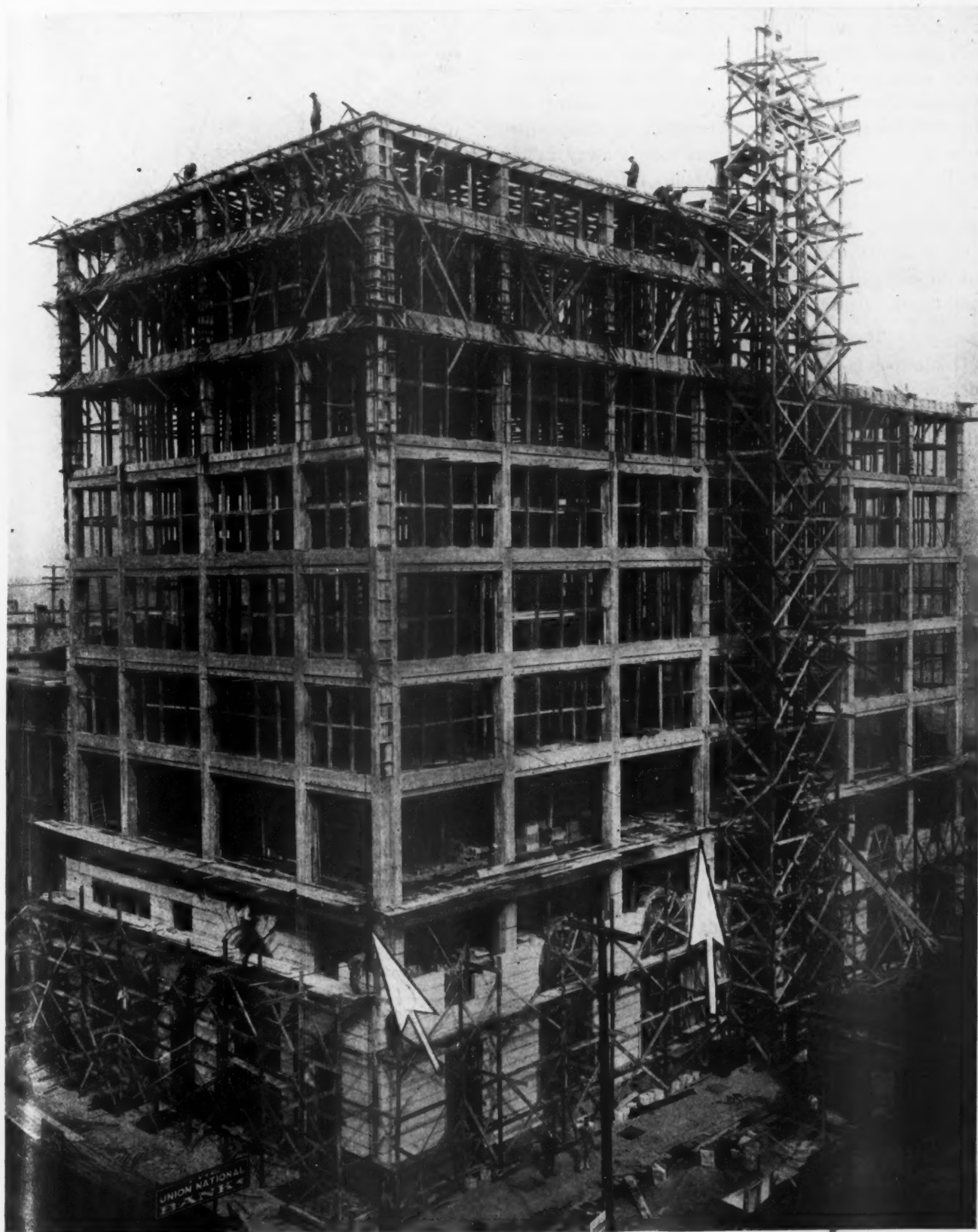
"Any kind, mum," said the prisoner, lowering his voice to a whisper, "just so it's got a file in it."—*Birmingham Age-Herald*.



Bungalow Farm Home Under Construction in the Durham Colony, California.

Overhead Carrier System Used to Place Granite Blocks on Big Office Buildings

THE OWEN-AMES-KIMBALL CO., GENERAL CONTRACTORS, GRAND RAPIDS, MICH., HAD THE CONTRACT FOR THE UNION NATIONAL BANK BUILDING, AT MUSKEGON, MICH. IN PLACING THE HUGE GRANITE BLOCKS ON THE FIRST TWO STORIES, THE CONTRACTORS USED AN OVERHEAD CARRIER SYSTEM, THE BLOCKS BEING HOISTED TO A PLATFORM, PICKED UP BY THE OVERHEAD CARRIER AND TAKEN TO THEIR POSITIONS. THE ARROWS IN THE ACCOMPANYING ILLUSTRATION SHOW THE LOCATION OF THE CARRIER.



The Union National Bank Building, Muskegon, Mich., During the Course of Construction. The Arrows Point to the Overhead Carrier System, Used to Transport Heavy Stones and Drop Them in Place. The Stones First Were Hoisted to the Platform and then Moved by the Carrier System. The Contractors Found this to Be An Economical Method.

Slate Roofs and How to Lay Them

HERE IS DETAILED AND HELPFUL INFORMATION FOR PUTTING ON THIS, THE OLDEST OF ROOFING MATERIALS

SLATE is the oldest known roofing material that is still in general use, and as it is fireproof, non-absorbent and is not difficult to lay, it has many friends among owners of homes and other buildings.

A slate roof is put on in much the same way as any other shingle roof. There are, however, some methods that are different and builders who have clients who want slate roofs should be familiar with them.

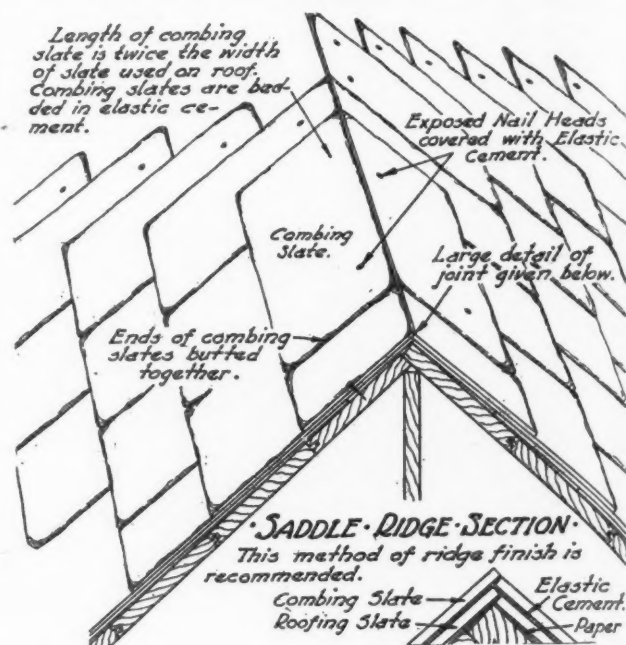
Something about the origin of slate for roofing may be trite, but it is interesting nevertheless. Slate stone was formed by nature and was stored away in the earth for ages. It is found in bulky masses; is quarried in the same manner as other building stone, but its formation is such that it can be split into sheets of any desired thickness. The slate stone is taken out of the earth in large slabs and is then split into sheets and the sheets are trimmed to the proper sizes.

The Advantages of Slate Shingles

Slate rock is non-absorbent and consequently cannot decay. It gives the roof a good appearance, is fireproof and durable. In sections of the country where the slate rock is found, it is used very extensively for roofs of houses and all other buildings, and has a strong following in other localities.

Some builders have a mistaken idea that a building has to be constructed much stronger to carry a slate roof than a roof of other materials. The weak points of any roof are the valleys or other breaks in the roof where snow is apt to gather. It is well known that snow slides easily off a slate roof. Rafters, 2 by 6 inches and 18 feet long, 2 feet from centers, make a

roof of sufficient strength for slate. One-half pitch or steeper makes the best roof, both for looks and strength, as it throws the weight on the walls more

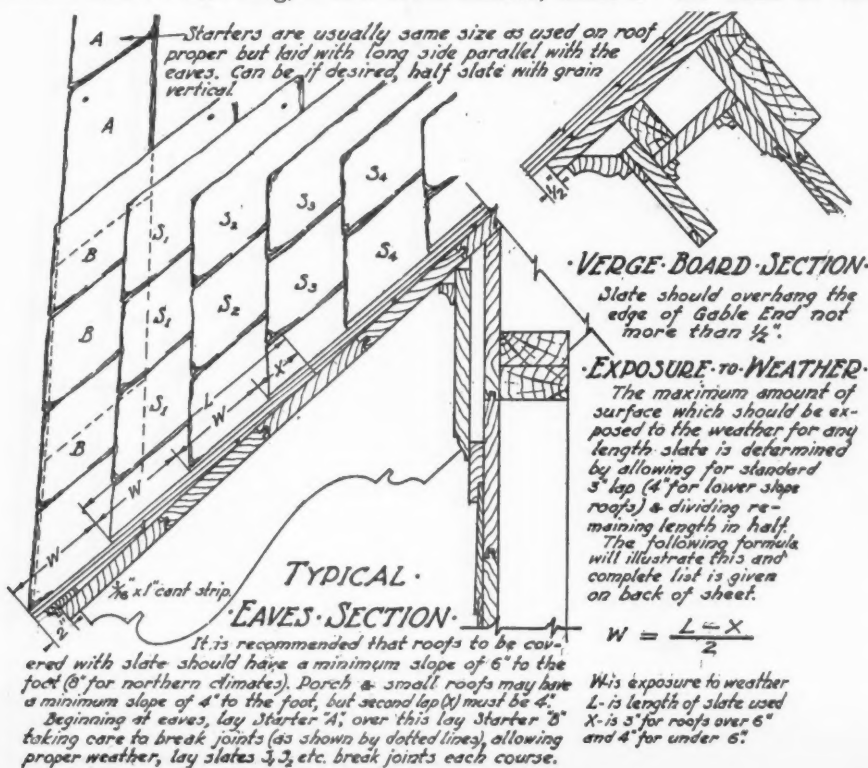


than the rafters and causes the snow to slide off clean, thereby never overloading any part of the roof.

Nailing Must Be Done Carefully

In nailing the slate to the roof care is required. The nails should not be driven too tight, as it will be necessary to have the slate lie free, but, at the same time, the head of the nail should not project above the surface of the slate. If the nail is driven too tight it will break or strain the slate. If the nail head projects so that the slate of the next course rests on it, this slate might be broken by the weight of the scaffolding used in putting it on or a person walking on the roof.

The number of squares in a roof can readily be determined in the following manner: Suppose the length of the roof is 35 feet and the length of the rafters 15 feet. Multiply 35 by 15 and the result is 525. The opposite side being of the same dimensions, the result would be the same. These two totals added together make 1,050 square feet, which would require ten squares and 50 feet of slate. As a rule, the squares in a roof are always equal to the squares of slate required to cover it. And a square is the standard of measurement by



which roofing slate are sold by manufacturers and dealers.

Begin at the Eaves and Work Up

In laying a slate roof the roofer begins at the eaves and works up. A "cant" strip, about three-eighths or

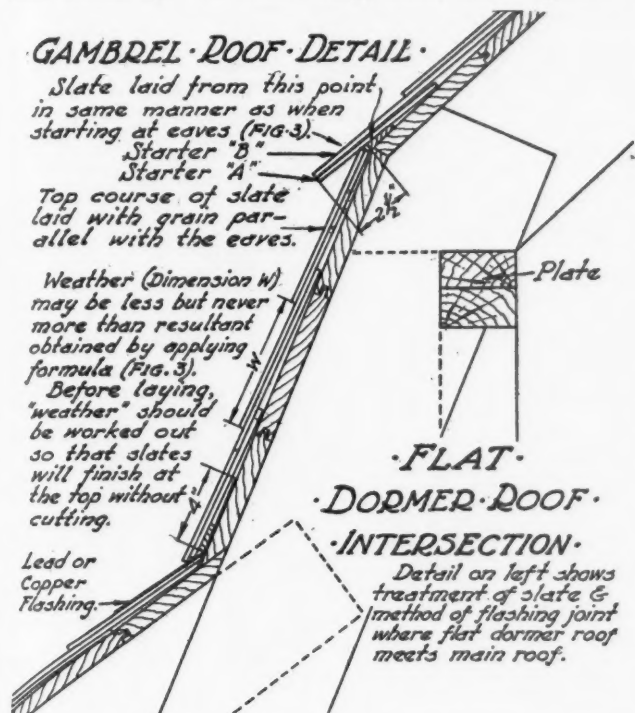
course, or "finishers," it may require a little variation in the lap. The last course at the ridge usually is laid lengthwise, but it would be better if a wider slate were used and cut in two to the proper length, and put on with the grain running up and down, as then all the slate on the roof have the grain running the same way. It is important, however, that these slates must be laid with well-broken joints, as are all the other slates on the roof.

The illustrations accompanying this article show the methods used in laying slates on different kinds of roofs, and in the gutters, valleys, etc. The explanations accompanying the drawings will help the builder materially.

Government Slate Roof Requirements

The following brief points on laying slate roofs were prepared by the Building Materials Division of the U. S. War Industries Board for the guidance of roofers on war building projects.

Roof boarding or sheathing is to be seven-eighths of an inch thick and not more than eight inches wide, tongued and grooved and surfaced on one side, and free from wanes, shakes or loose or large knots. The boards, to allow for swelling, are not to be driven up tight and are to be laid with the surfaced side against the rafters with tongues toward the ridge and nailed with 10d nails, with all joints occurring over rafters and purlins.



one-half inch thick and two inches wide is well nailed across the roof at the eaves. The slates in the first course are short and are entirely covered by the second course. The third course overlaps the first two courses. This overlapping covers a space of three or four inches. The lap is the amount the tail of the third course laps over the head of the first course.

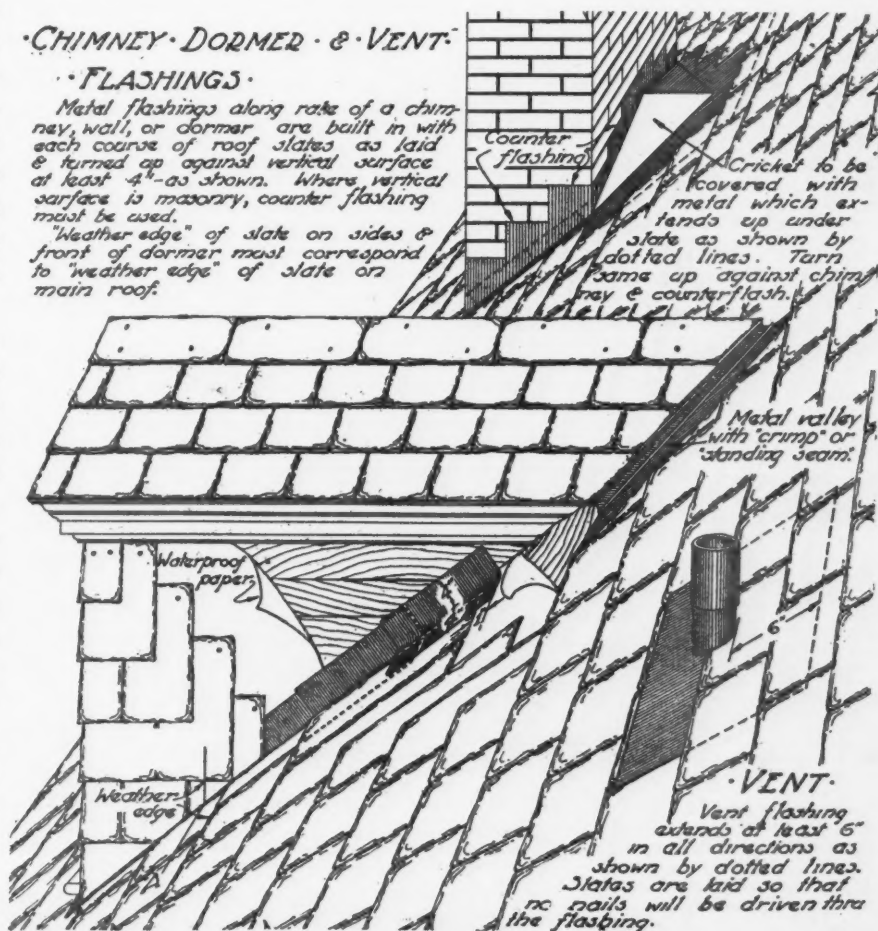
The length of the slates in the first course is governed by the length of the slates selected for the roof, but they should be long enough to be overlapped by the third course three inches. The first, or under-eaves course, is usually laid lengthwise and requires a different size slate than the others used on the roof. The second course is laid with the lower, or tail, end even with the lower edges of the under-eaves, so as to make the slate double at the eaves. The other slates are laid double over the entire roof and where the part called "lap" is there are three thicknesses of slate.

As the work approaches the ridge, to get the proper width for the last

CHIMNEY DORMER & VENT FLASHINGS

Metal flashings along side of a chimney, wall, or dormer are built in with each course of roof slates as laid & turned up against vertical surface at least 4" as shown. Where vertical surface is masonry, counter flashing must be used.

"Weather edge" of slate on sides & front of dormer must correspond to "weather edge" of slate on main roof.



The roof boarding shall be covered with one thickness of "slaters' felt" weighing not less than 11 pounds per 100 square feet, and laid in horizontal layers with joints lapped toward the eaves at least 3 inches tacked down.

A base flashing course of 16-ounce copper, four-pound lead, IX tin, or prepared roll roofing weighing not less than 37 pounds per 108 square feet, extending 4 inches on the roof if showing, or to the



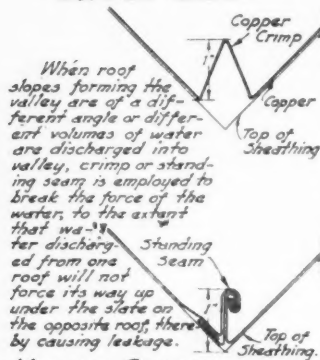
Slate Shingles of Random Widths Are Now Considered Good Architecture.

full depth of the top slate if covered by it, and not less than 4 inches vertically, shall be laid against all chimneys, parapet and party walls, roof posts and porch roofs where they connect with walls. Similar flashings, 4 by 4 inches by a length equal to "weather" plus "lap" laid in each course of slates, shall be carried up all rakes.

Specifications for Flashings

Where base flashings are not covered by slate or siding, a cap or counter flashing course of lead, copper or tin shall be tightly built into all masonry at least 2 inches and shall cover the vertical leg of the base flashing at least 3 inches. All vertical cap flashings are to be sealed tight with elastic roofing cement.

VALLEY SECTION SHOWING COPPER CRIMP



VALLEY SECTION SHOWING

STANDING SEAM

VALLEY FLASHING DETAILS

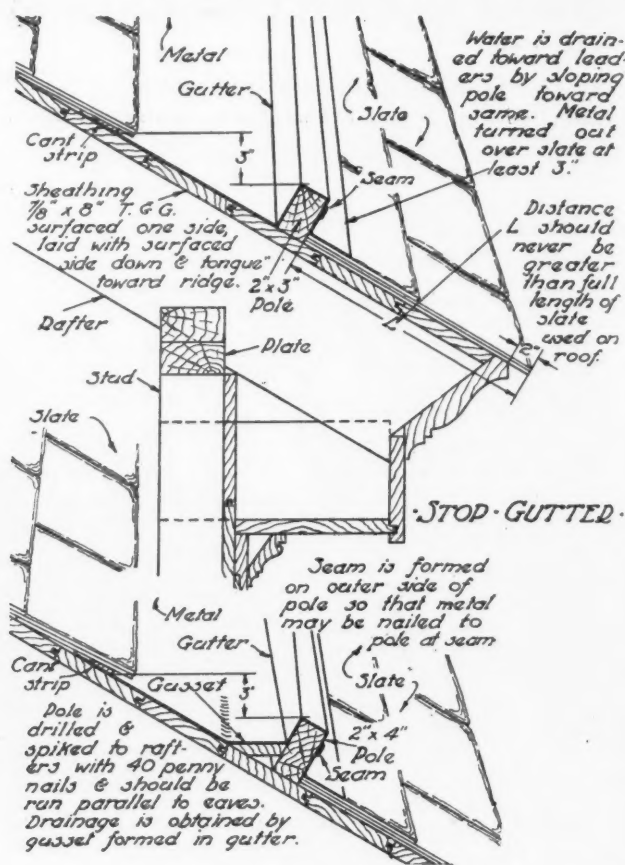
Exposed Flashing in open valleys should be wider at bottom than at top. Dimension X should be not less than 2" at the top of valley & widen out at the rate of 1/2" in 8'-0" toward the bottom.

EXAMPLE:
24'-0" valley - X at top = 2"; X at bottom = 3 1/2"

Flashing is run up under slate a distance (Dimension Y) equal to approximately 2/3 of the width of the slate used on the roofs.

EXAMPLE:
Size of Slate - 8' x 16" - Y = 5"
Size of Slate - 10' x 18" - Y = 6 1/2"
Size of Slate - 14' x 24" - Y = 9"

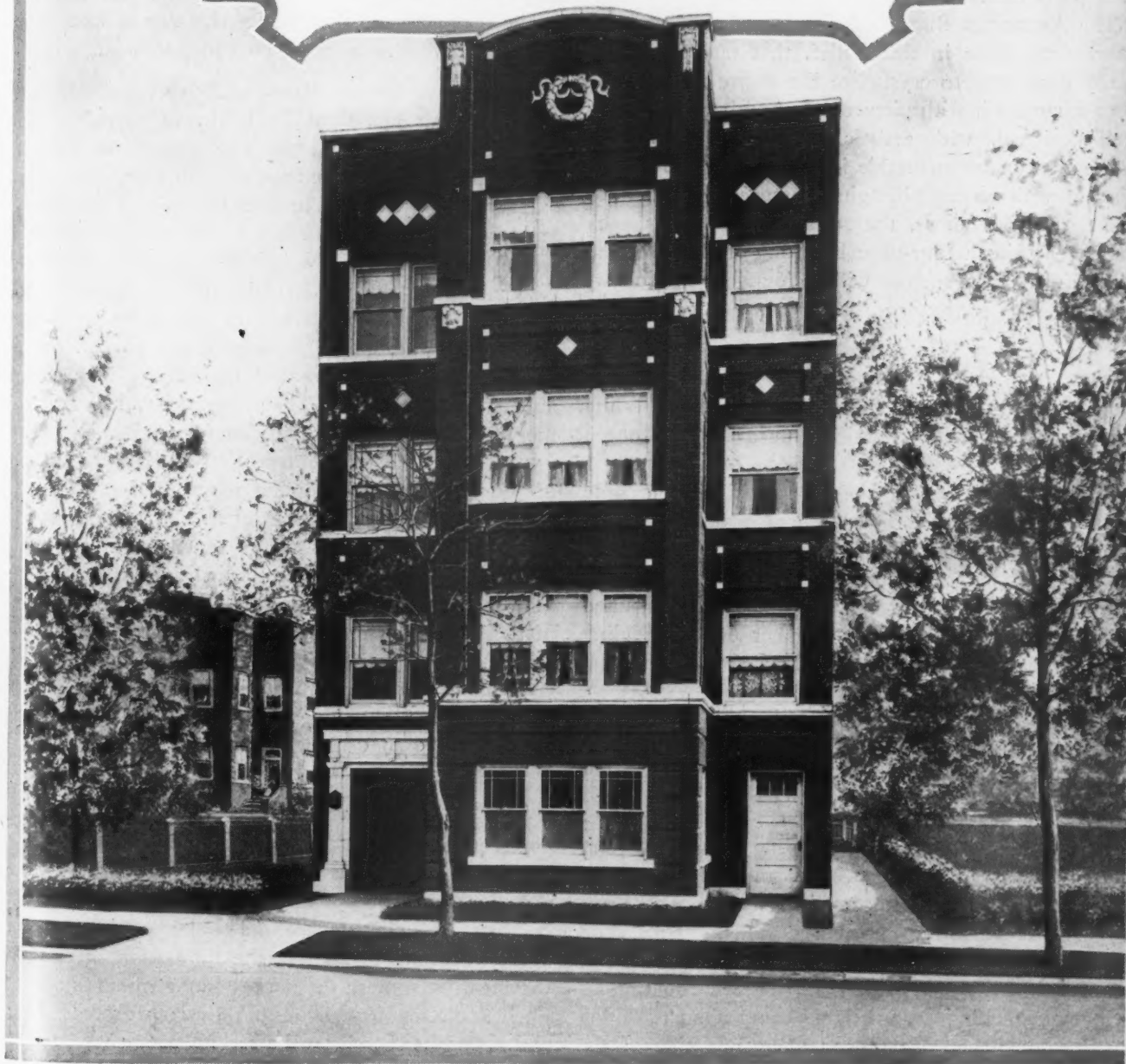
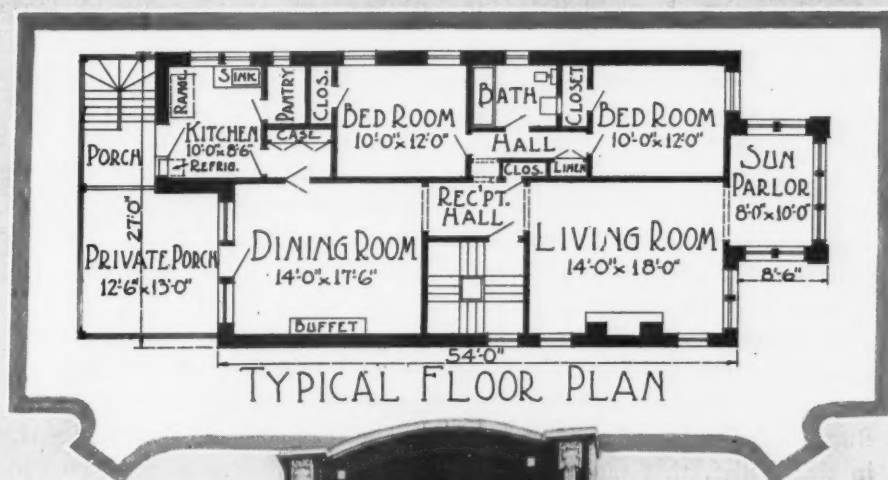
OPEN VALLEY



All slate shall be carefully sorted, punched for nails and laid in three thicknesses commencing with the thickest slate at the eaves and grading upward. No cracked or broken slate shall be used and nails shall be driven so as not to produce strain on the slate. The slate shall project 2 inches at the eaves and 1/2 inch at all gable ends, and shall be laid in horizontal courses so that the third course shall lap 3 inches over the first and each course shall break joints with the preceding one. The lap shall be 4 inches on porch roofs. The slate shall begin at the cornice line, or eave, with a starting course canted three-sixteenths of an inch so that the succeeding course shall have a flat contact. The slate shall be fastened to the roof

boards with flat-headed, 3d 1 1/4-inch "slate roofing" nails, two to each slate. All exposed nail heads shall be covered with elastic roofing cement.

The slate at the eaves, ridges, valleys, hips, etc., shall be cut and laid so that their bond pattern will be preserved. The ridge course shall be laid double saddled or combed. No slate with the grain running horizontally shall be used, with the exception of under the eave courses and for ridges. The slate in the valleys shall be cut to form a continuous taper narrowing toward the top.



BRICK AND TERRA COTTA THREE-FLAT BUILDING. For the city real estate owner, a three-flat building provides not only a home for himself and family, but a profitable investment. This design approximates the modern ideas of a city dwelling. The dimensions are 27 by 54 feet, suitable for a narrow lot. The typical floor plan shows the room arrangement. There are five good rooms, besides the sun parlor. The face brick front, with the terra cotta trim makes this a most attractive building. Note the high ground floor—known as an "English Basement."

Portfolio of Blue Printed Beautiful Homes

FOUR DESIGNS THAT WILL INSPIRE THE HESITANT HOME BUILDER TO ACTION ARE SHOWN ON THE FOUR PAGES FOLLOWING

INSPIRING the prospective home builder to action is one of the essential steps in securing a contract. Thousands upon thousands of persons who live in houses owned by others than themselves picture in their minds the joys of home building and home owning, but have not been brought to the point where they will affix their signatures to a contract with the builder and material dealer. The ability to get the name written on the dotted line at the bottom of the contract is just as necessary to success in the building business as is the ability to construct a home, or see that the workmen perform their parts well.

The AMERICAN BUILDER believes, and thousands of its readers share in that belief, that one extraordinarily good way to crystallize the desire for a home is to stimulate it with pictures of good homes—homes well designed, with artistic exteriors and modern, convenient and comfortable interiors. To provide its readers with contract-bringing perspectives and floor plans of good homes, the AMERICAN BUILDER each month contains a four-page Portfolio of Blue Printed Beautiful Homes, such as will be found on the following four-page supplement, lithographed in two colors.

The Four Designs

The four designs presented this month are of a Bungalow for a Corner Lot, an Attractive White Bungalow, a Six-Room Brick House and a Modern Stucco House.

These designs are of the type that will not only rouse to action those who have long planned to build a home, but will imbue others with the idea that one of the great joys of life is to plan, build and own a home. For these reasons the Portfolio of Blue Printed Homes is valuable to every member of the building industry and will be found a great help in securing contracts.

Two Excellent Bungalows

The bungalow shown on page one of the portfolio is especially designed for a corner lot that is narrow. The dimensions of the house are 27 by 50 feet, with a 10-foot porch projection on the narrower front. The roof arrangement, the porch and the porch roof combine to give this bungalow an attractive exterior, while the room arrangement is excellent. Five good rooms are provided. The living room is nearly square, being 16 by 15 feet, with the front wall continuous windows, making it a bright, cozy room. Dining room and kitchen are ranged along one side of the house and the two bedrooms, with the bath between them, on the other. A feature of the floor plan is the breakfast nook, between the dining room and kitchen.

The design for a six-room white bungalow is out

of the ordinary, because of the wide front porch and the terrace at the side. These two features, together with the broken roof line, make this a fine appearing home. The pergola and garage, the latter being of the same architectural style as the home, add to the attractiveness. The dimensions of the bungalow are 30 by 46 feet. The living room is 19 by 13 feet, with a library 9 feet 6 inches by 13 feet adjoining it. The dining room is 12 by 15 feet, and opens to the side terrace. A hall out of the dining room connects the two bedrooms, with the bath between. A number of excellent features are built into the kitchen, while a large pantry, with an opening to the rear porch so that the ice box can be iced from outside make this a most convenient room.

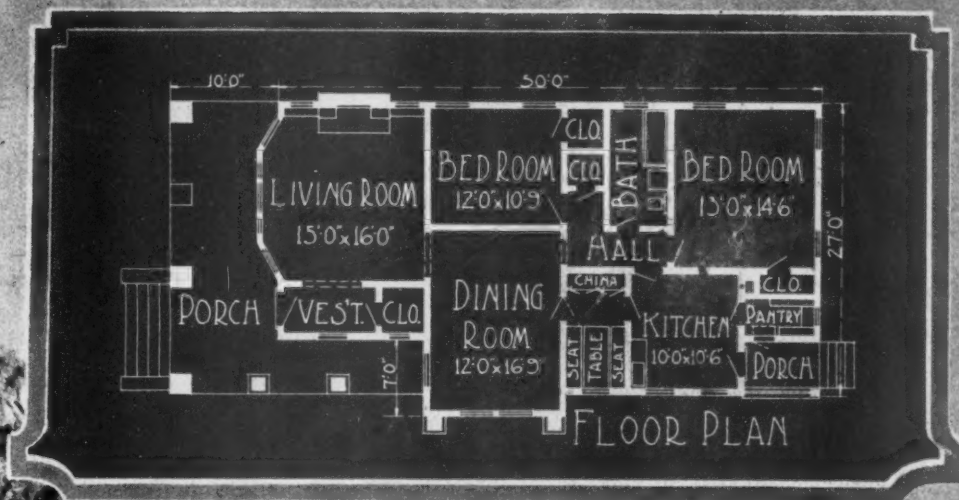
Unique Home of Brick

Designs for homes of brick always appeal to the prospective builder and the one shown on page 3 of the portfolio is no exception. In fact, this is an extraordinary home. The broken lines of the house and the column-like effects at the corners, coupled with the stuccoed gables in the house and the shingled gables of the porch make this a unique home. While the floor plan shows six rooms in the house proper, the addition of a large living porch with a sleeping porch on the second floor really makes this an eight-room house. The compact arrangement of the rooms, the living room, 26 feet 6 inches, opening off one side of the reception hall in the center of the house, and the dining room, 12 feet 6 inches by 16 feet, opening off the other. The living porch is 12 by 20 feet and also has an entrance from the outside. The kitchen, 12 feet 6 inches by 10 feet, with a large pantry opening off it, adjoins the dining room at the back. On the second floor are two bedrooms, a small room in the front gable that can be used either as a bedroom or sewing room, the bathroom and good-sized sleeping porch. This is an especially attractive and convenient home.

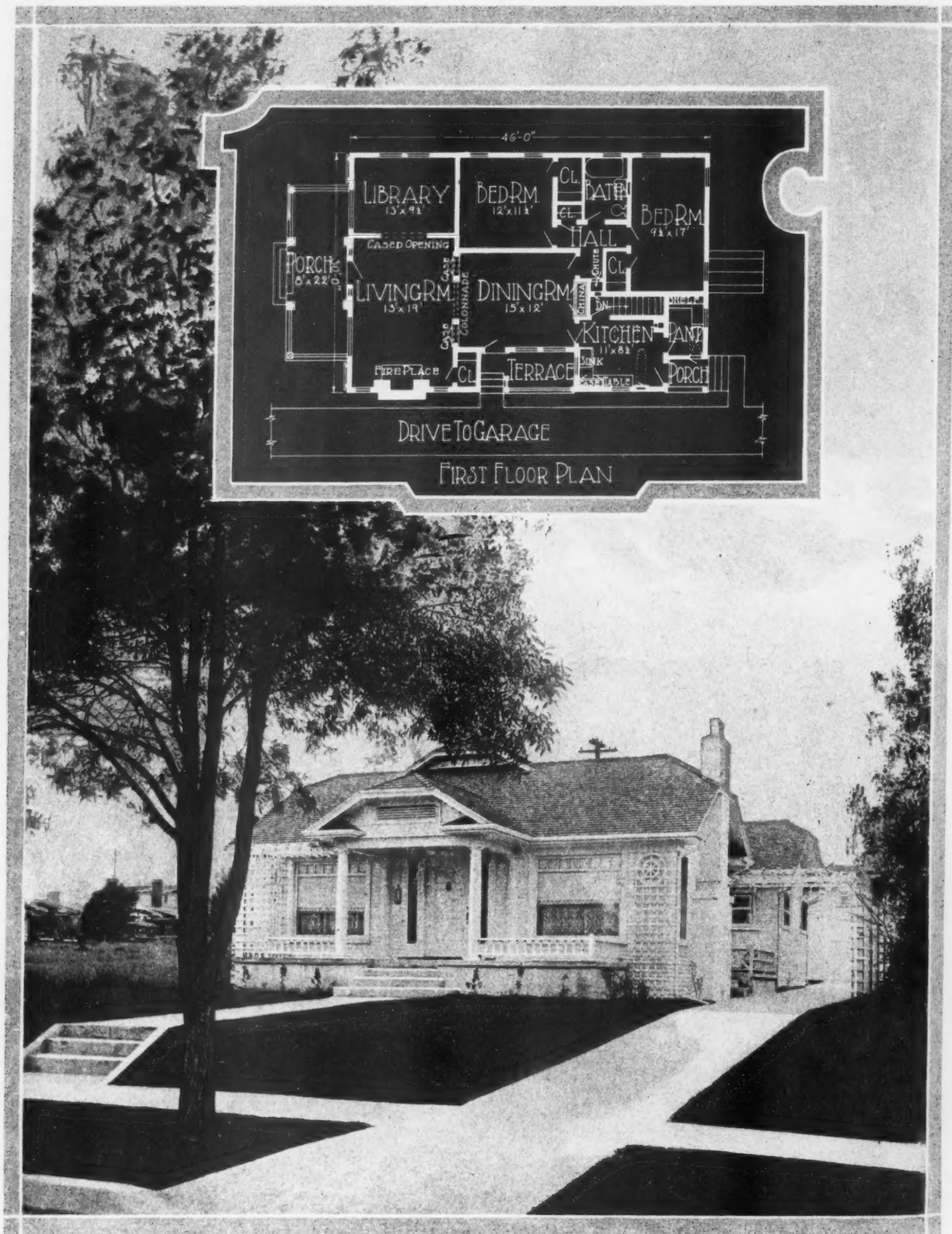
A Fine Stucco House

The six-room stucco house, shown on page 4 of the portfolio, is well designed. The sun parlor and terrace, with the garage adjoining one side, make this a good-looking home, while the interior is arranged for comfort and convenience. The large living room, 13 feet 6 inches by 26 feet, the sun parlor, fitted with casement windows, the large dining room and the kitchen on the first floor and three bedrooms, bath and a sleeping porch on the second floor complete the floor plan.

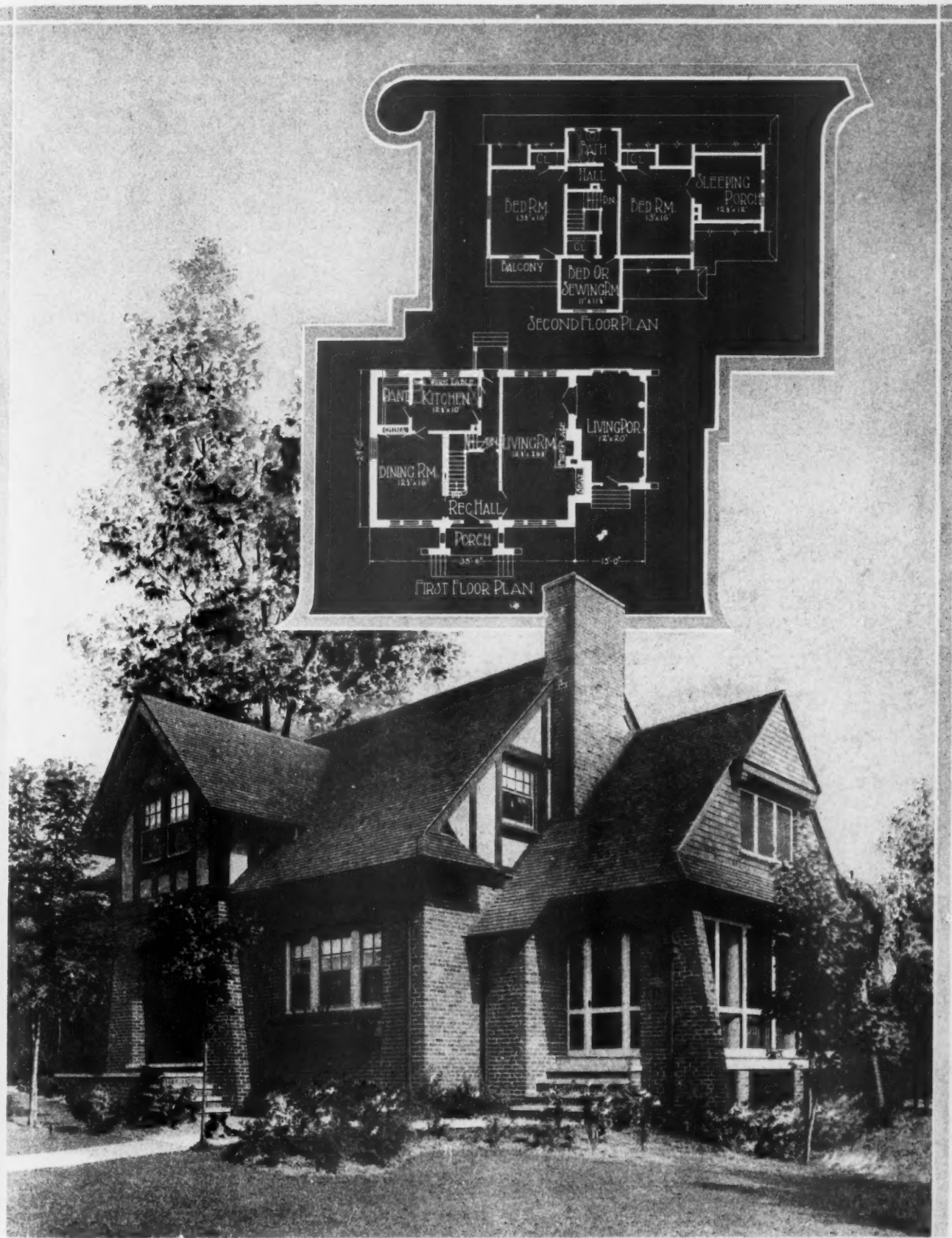
These are four excellent home building designs—designs of the type that contractors like to build for the simple reason that they will give the owners the utmost in satisfaction.



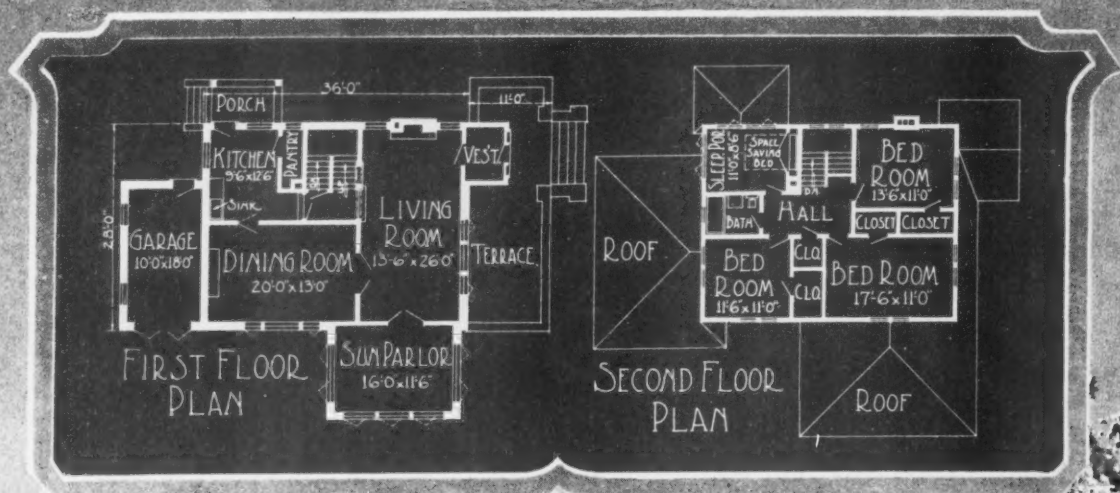
BUNGALOW FOR CORNER LOT. The home for a corner lot now is designed so that the house presents an attractive front to both streets. Here is such a design. The overhanging roofs of the porch, with stuccoed gables and the porch extending around the corner make a unique exterior. The house contains five rooms of fair size and a bathroom, all conveniently arranged. The dimensions of the house are 27 by 50 feet, with a 10-foot porch projection. The floor plan shows the many unusual features of this design.



AN ATTRACTIVE WHITE BUNGALOW. White bungalows make beautiful homes. This design for a six-room bungalow is exceptional. The terrace and front porch, the broken roof lines and the terrace at the side all are unusual exterior features that add to the beauty of the home. Living room, library, dining room, kitchen, two bedrooms and bath are provided in this floor plan. The dimensions of the bungalow are 30 by 46 feet, with an 8-foot front porch projection. The garage is of the same architectural style as the house, making an attractive home building group.



UNIQUE SIX-ROOM BRICK HOUSE. Here is a design for a brick house that will have a strong appeal for the prospective home builder who wants something out of the ordinary. While the floor plans show only six rooms, the large living porch and the sleeping porch above it really add two good-sized rooms. The dimensions are 38 feet, six inches by 29 feet, a size suitable for a shallow lot. The artistic exterior and the convenient and roomy interior combine to make this an excellent design.



SIX-ROOM STUCCO HOUSE. Stucco homes are popular. Here is a design for a stucco house with a face brick porch that is a beauty. The dimensions of the house are 36 by 28 feet, exclusive of the porch projection. The living room, 13 feet, 6 inches by 26 feet, is extraordinarily large, and so is the dining room, 20 by 13 feet. The good-sized sun parlor, the sleeping porch on the second floor and the arrangement of the rooms take this design out of the "ordinary" class. An additional feature is the garage adjoining.

How to Build Efficient, Economical Homes

SPACE-SAVING BEDS PROVIDE COMFORT AND CONVENIENCE AND ELIMINATE THE COST OF THE BEDROOMS

By Robert C. Cash

THIS is the age of efficiency—getting the most out of life with a given amount of effort. We have highly paid efficiency experts working to improve the method of manufacture of all products, as well as the conditions under which men and women labor. And what wonderful advancement has been made along these lines! The “sweatshop,” “unsanitary holes,” “damp basements,” etc., etc., are practically a thing of the past. In their place we have light, airy, sanitary establishments with the comforts and convenience of employees looked after to the greatest possible degree. The Captains of Industry have long since discovered that the money invested in such improvements pays large dividends.

Why not apply this efficiency to the home? Think what it means to the housewife to save just a few steps here and there, an extra sweeping, dusting, lifting or moving this or that article of furniture. Individually it seems so little, but collectively it may

mean an hour or two of work saved for her each day, year after year.

Millions of dollars are spent each year in the manufacture and development of mechanical labor-saving devices, but the designer and builder of homes, flats or apartments has it within his or her province to do more to lighten the work of the housewife than any other one agency.

Therefore, the design and arrangement of all places of abode should be given serious thought and suggestions of merit which have for their inspiration increased efficiency looked upon with favor.

Save Space in the Home

The arrangement of the floor plan for a house or apartment made possible by the use of the modern type of space-saving bed is the greatest single agency conceived in recent years for increased efficiency of both. By its use, one or two bed rooms in a home or the bed rooms of an apartment can be eliminated entirely. What a saving!

First: In the cost of construction.

Second: In the cost of operation and maintenance.

Third: In the cost of furnishing.

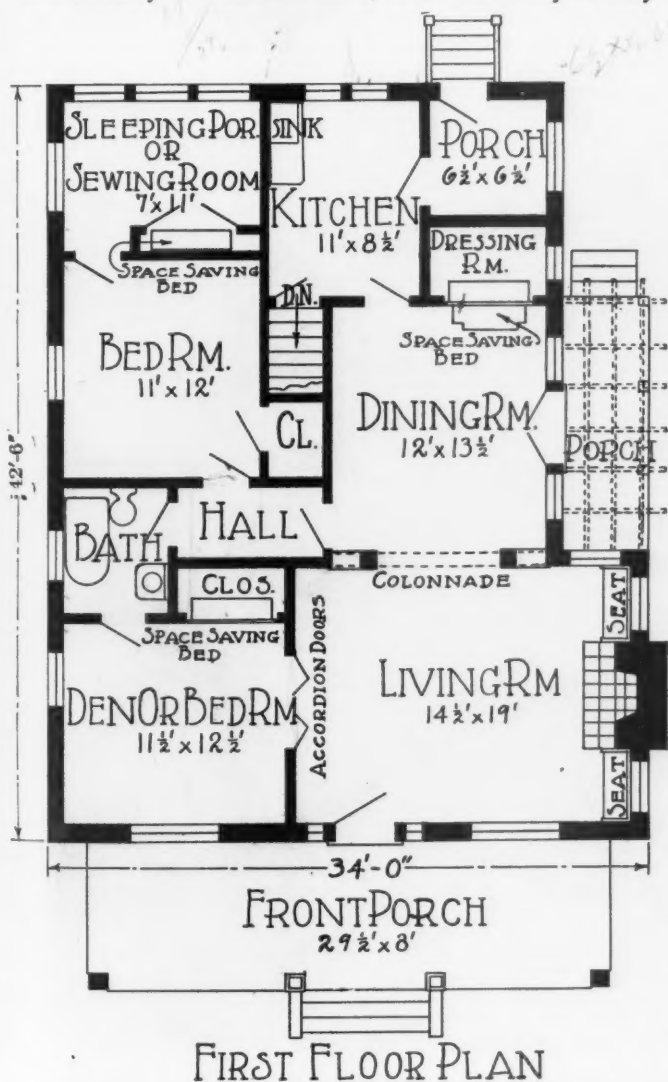
Fourth: In the labor of upkeep for the housewife.

And what does one sacrifice for this increased efficiency? The comforts of an old-styled bed room? Not entirely, because with the use of a large dressing room in back of the bed as shown in the accompanying floor plan, we still have the convenience of a regular bed room, curtailed a bit, possibly, confined to a smaller space. A room for a dresser or dressing table and plenty of hanging space for the clothes, etc. This dressing room when on an outside wall, as shown here in the dining room, has an outside window which gives plenty of light and ventilation. When on an inside wall a vent is always used. The bed itself is just as good as any regular bed and is always ready for use the minute you let it down in the room—all bedding, including the pillows, is held in place by a special device when it is tipped up on end.

Plan Shows How It Is Done

In the suggestive floor plan shown by using a space-saving bed in what is ordinarily the front bed room, this desirable space is converted into a den or library during the day and still can be used as a bed room at night.

The old style sleeping porch is used only as such because the bed takes up most of the room, where by using a space-saving bed this light and airy room can be used for sewing room or for other purposes during the day.



FIRST FLOOR PLAN

Floor Plan of Bungalow, Equipped With Space-Saving Beds. Here Five Rooms Perform Duties of Seven, a Great Saving in the Building Cost.

The bed shown in the dining room would be used as an extra bed in such a home as the one suggested by this plan.

Think what a saving in a home built along these lines would mean in each of the above mentioned instances—cost of construction; cost of operation and maintenance; cost of furnishing; and in the labor involved in the upkeep by the housewife.

In planning the next home you build give these suggestions serious consideration. They are worthy of it and will make you money.



Artistic Floor Effects

WHILE the hardwood floor of oak, birch, or maple is exceptionally durable and specially desired for the best type of homes, yet the close grained woods, such as pine, fir and cypress, also are very durable and may be finished in different effects which very closely approximate the appearance of hardwood floors.

While the majority of floors are finished in the natural by filling with a good grade of paste wood filler and further completing the finish with prepared wax or floor varnish, yet many people desire a stained effect to harmonize the wood-work and interior furnishings. Such floors can be made very attractive, and in hardwood effects, by the use of oil wood stain which consists of a permanent color pigment in

an oil vehicle. Such a product is particularly adapted for these woods and the finish should be completed by applying a thin coat of shellac and then finished over with two coats of prepared wax or floor varnish.

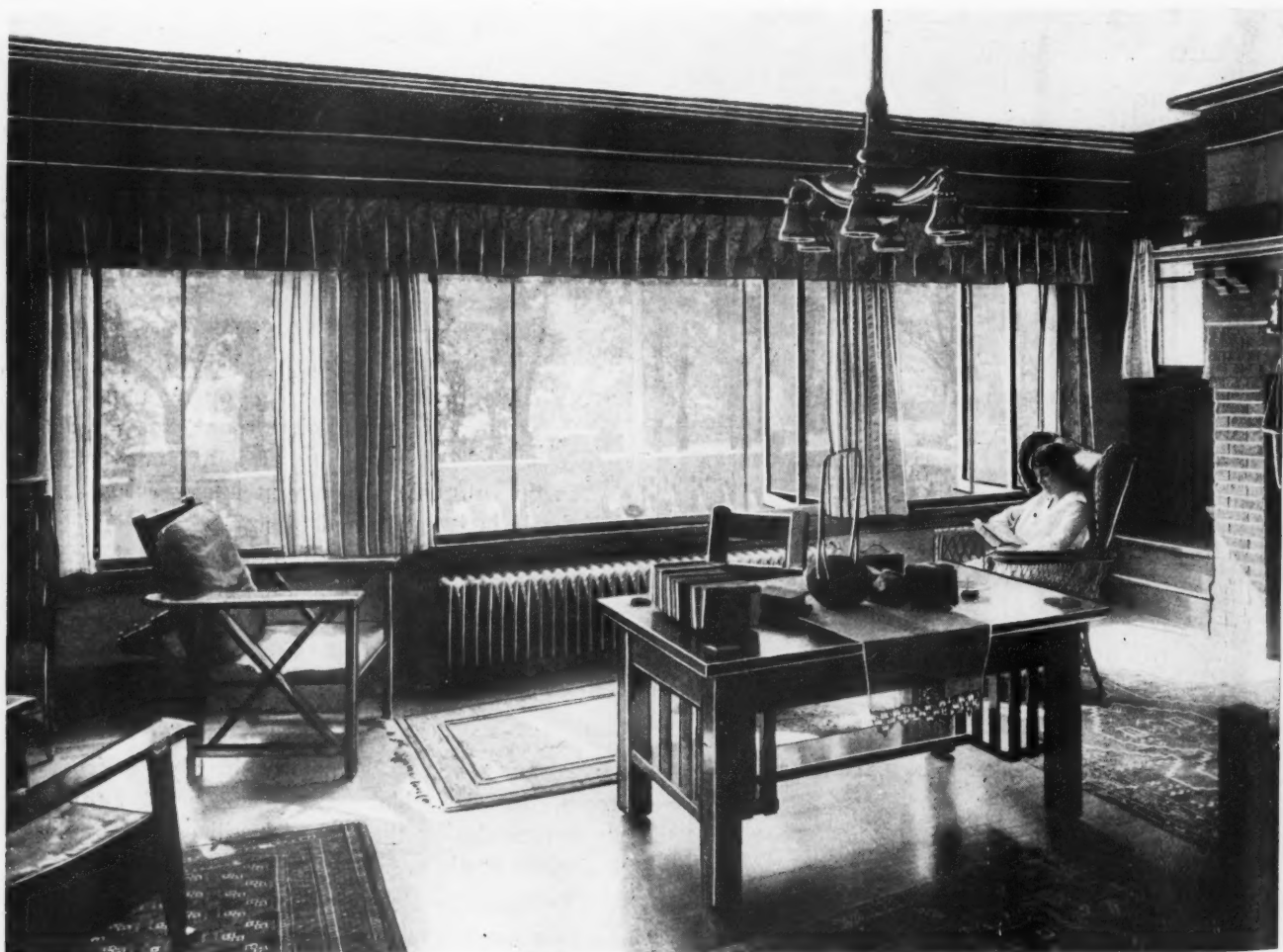
The stain should be applied freely with a brush to the smoothly sanded wood, and after allowing to stand for five or ten minutes, the surplus stain should be buffed off with a cloth. After allowing the work to dry for twenty-four hours, the finish may then be completed as designated.

If it is desired to obtain a deeper effect than that produced by the use of oil wood stains, the use of a varnish stain will give the effect desired. The varnish stain, of course, should correspond in color to the oil wood stain which has been used.

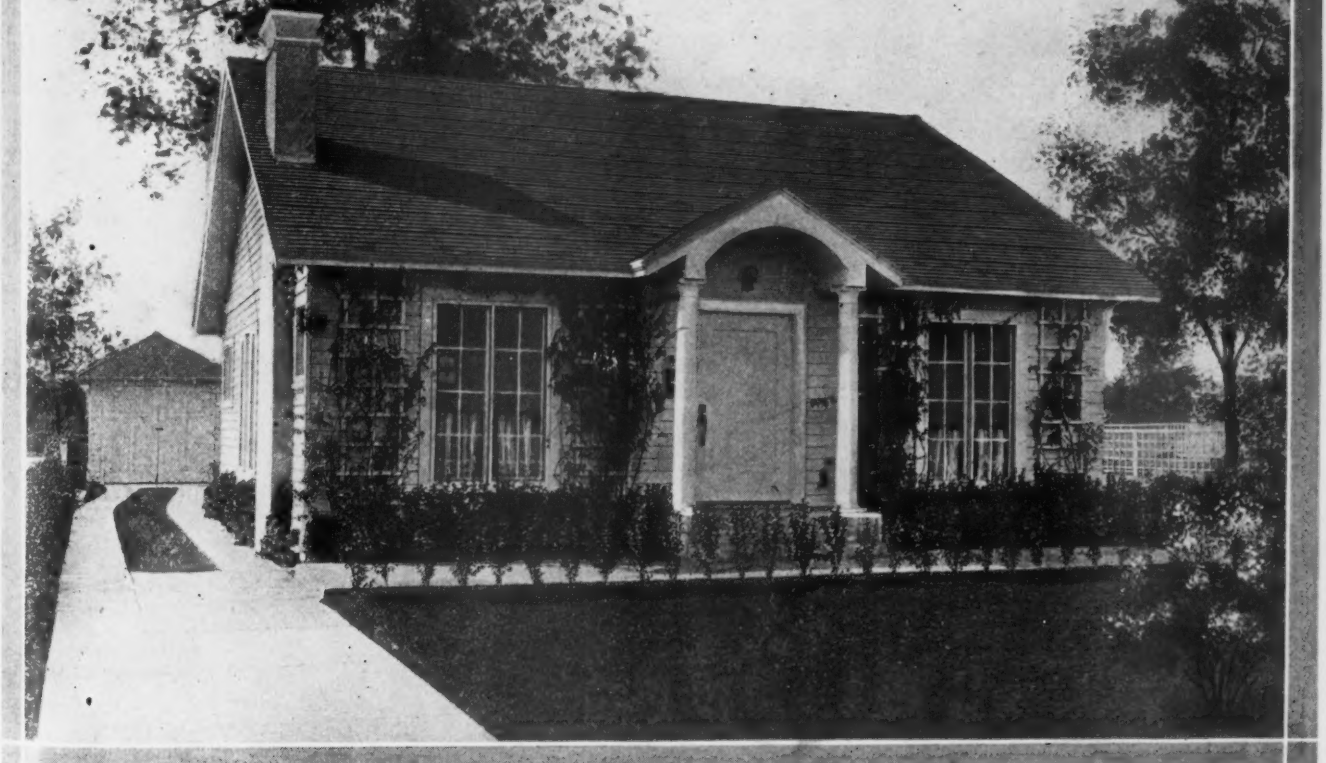
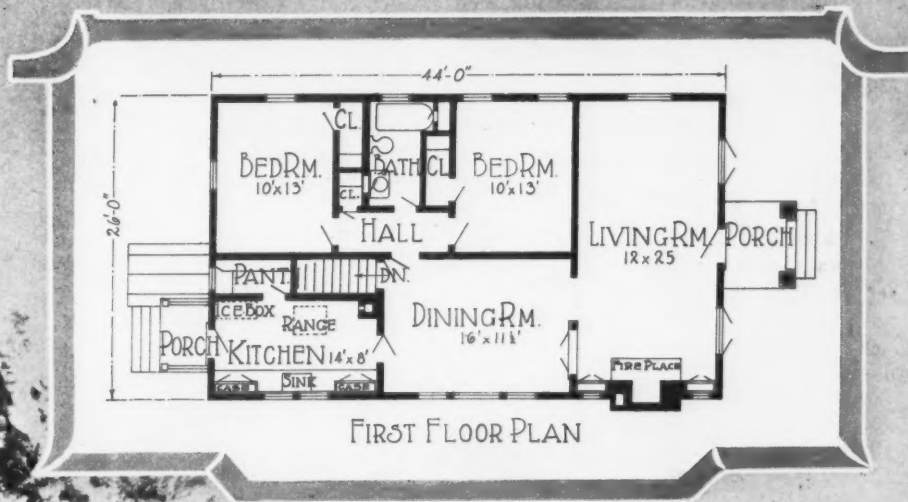
Such a floor will not only be a source of pride in finished appearance, but the effect will be obtained very economically.



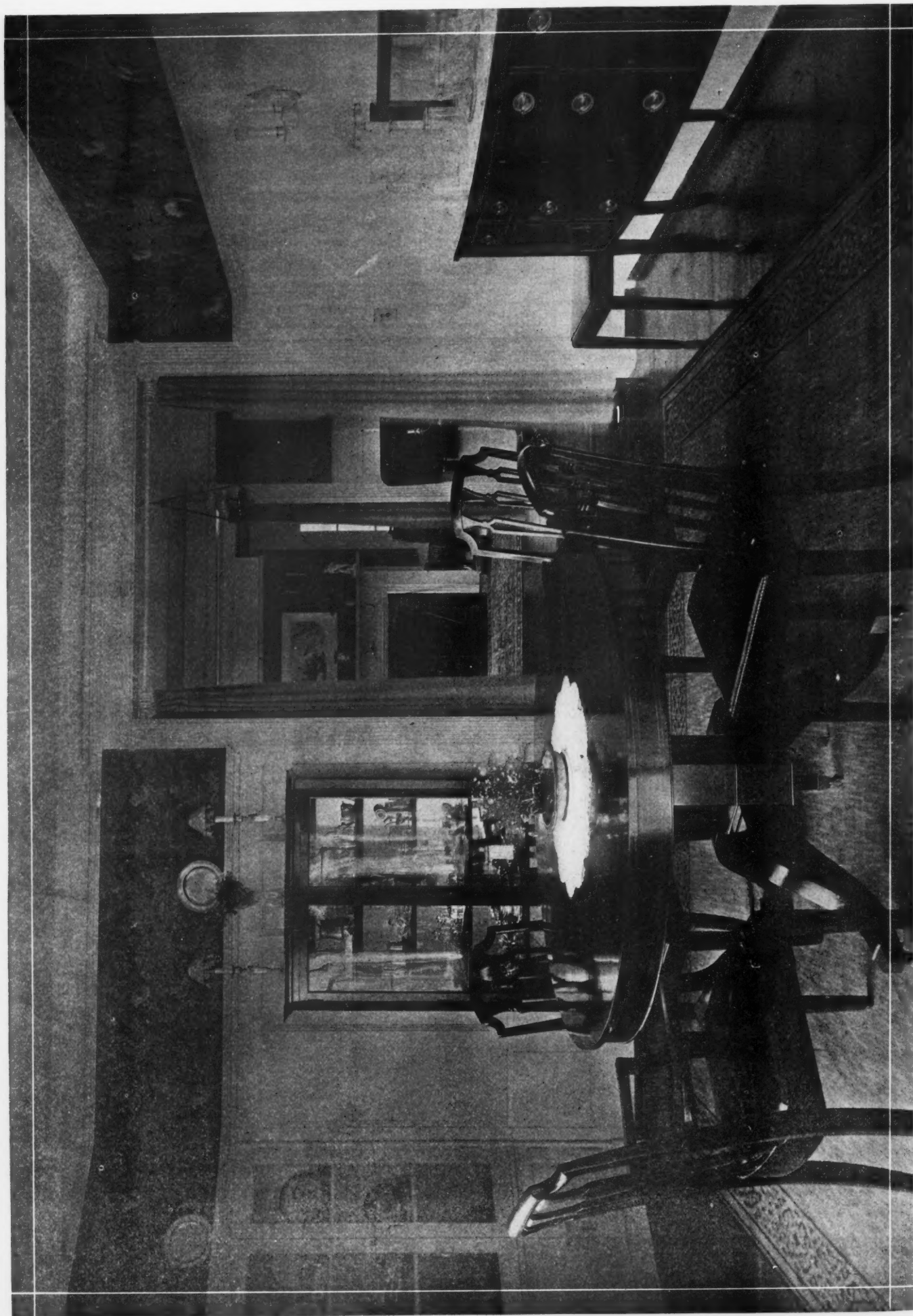
PREPAREDNESS is as vital to a businessman as it is to nations. Being prepared to accept any one of the numerous jobs that now are being offered contractors is the royal road to success and profits. In this Building Activity number of the AMERICAN BUILDER are designs for all sorts of buildings, examples of the types that are most in demand. A study of them prepares the contractor for "All Sorts of Building Jobs."



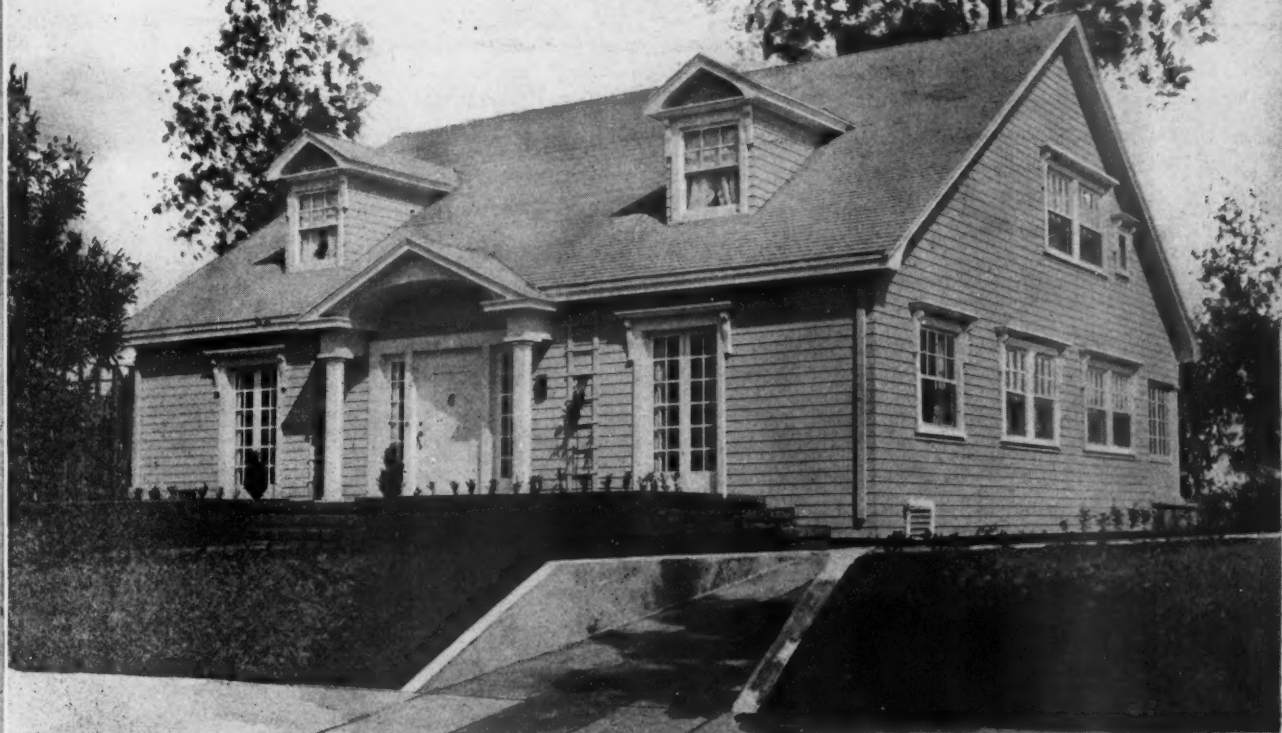
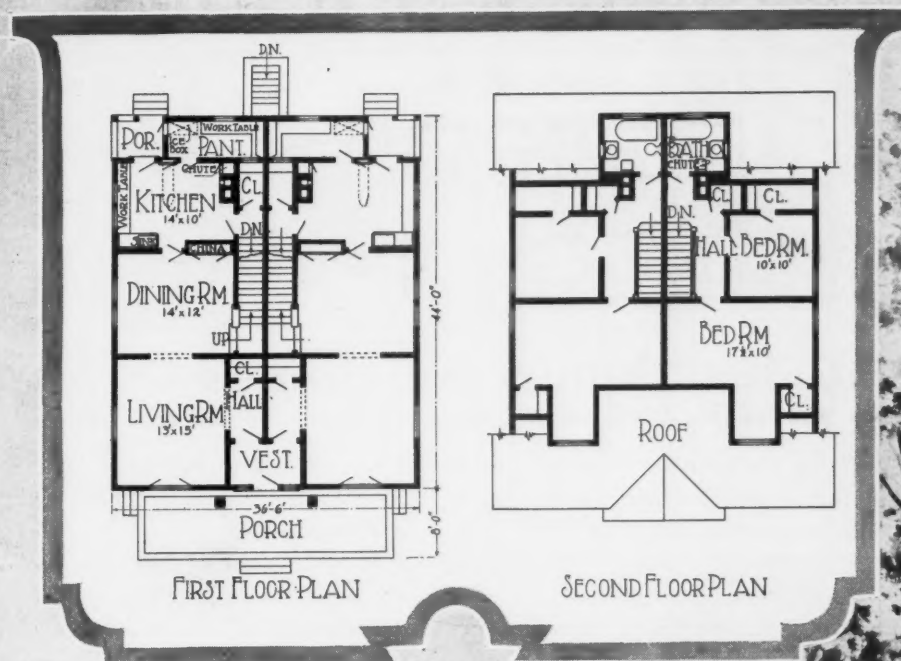
COMBINING THE SUN PARLOR AND LIVING ROOM. Broad Casement Windows Are Now Used to Make the Living Room as Pleasant and Comfortable As a Sun Parlor, and Allows the Space Usually Occupied by the Porch to Be Added to the Living Room. The Comfort that Is Obtained by this Combination Is Shown by the Fine Interior Picture Here. This Idea Will Appeal to Many Home Builders.



FIVE-ROOM WHITE BUNGALOW. Here is a bungalow designed after the cottage style. The gable roof and pitched roof, the casement windows and artistic porch combine to make this a most attractive home. A large living room, extending the width of the house, and good sized dining room, kitchen, two bedrooms and bath complete the room arrangement. The dimensions of the bungalow are 26 by 44 feet. This is a very good design for the small family that wants an artistic, comfortable and convenient home.



PLEASANT DINING ROOMS MAKE COMFORTABLE HOMES. Here is a View of An Attractive, "Homey" Dining Room. Note the Panelled Walls and the Built-In China Closet, Both of Which Add to the Beauty of the Room. While the Other Rooms Are Planned so That There is a View of the Fireplace in the Living Room.



DOUBLE HOUSE, EACH OF FIVE ROOMS AND BATH. An economical method of building homes is to erect double houses, thus saving the cost of one wall. This plan is popular in housing projects. The design shown is excellent. Here are two modern five-room homes, so arranged that from the exterior they appear to be a single house. The attractive exterior and the convenient arrangement of the rooms will have an appeal to prospective builders. The dimensions are 36 by 44 feet, so that the building can be erected on a 50-foot lot.

PLEASANT DINING ROOMS MAKE COMFORTABLE HOMES. Here is a View of An Attractive, "Homey" Dining Room. Note the Panelled Walls and the Built-In China Closet, Both of Which Add to the Beauty of the Room, While the Other Rooms Are Planned So That There is a View of the Fireplace in the Living Room.



Model Home Designs

Three Modest American Homes

THREE BUNGALOWS OF BRICK, STUCCO AND FRAME CONSTRUCTION SHOW IN THE ACCOMPANYING DESIGNS

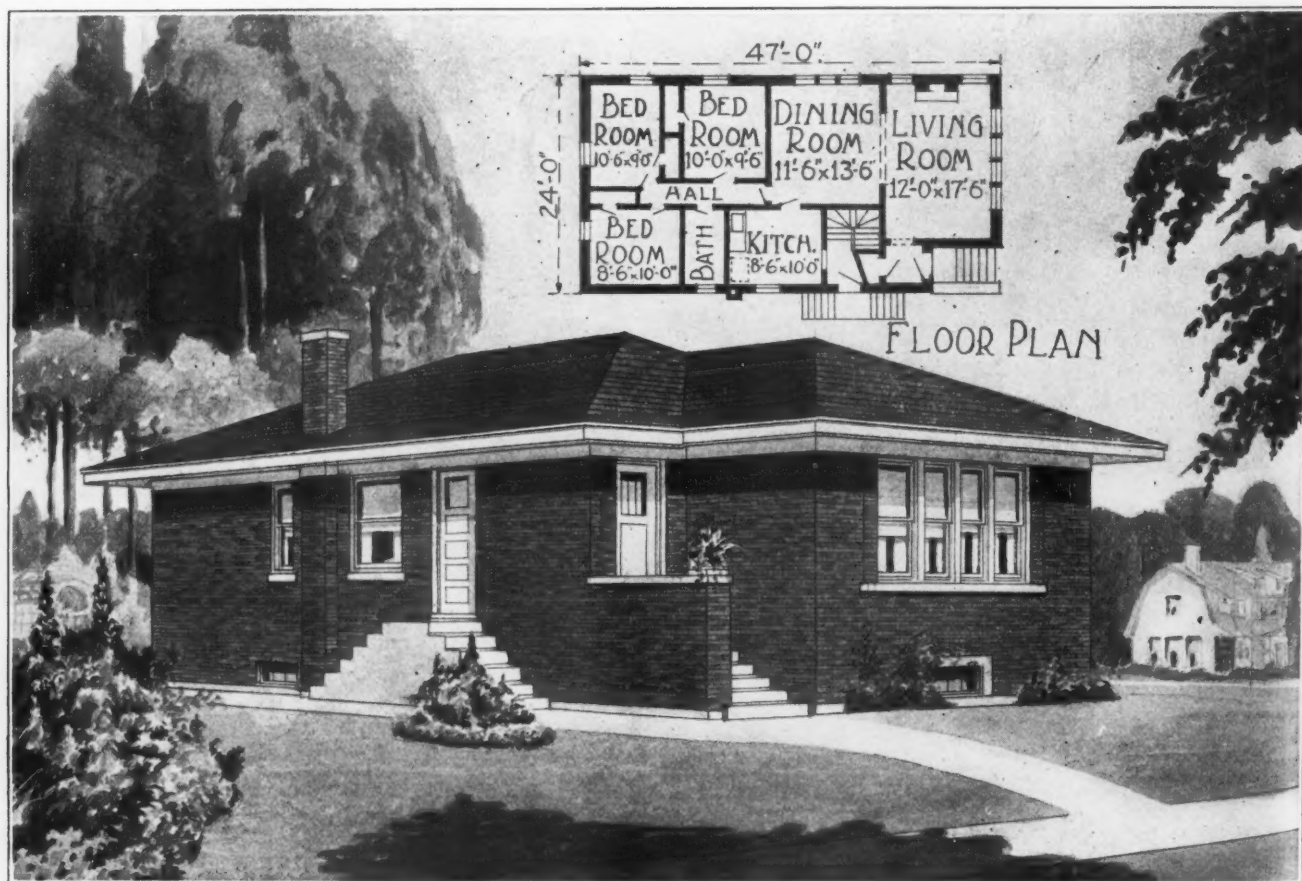
ON this and the following page are shown three designs for modern bungalows of five rooms each. The one on this page is of brick construction and those on the following page are of stucco and frame. All of these homes can be built on small lots, a feature that will make these designs especially attractive to the home builder who does not have a large amount of money to put into the building.

Each of these bungalows has a hip roof, which gives them an attractive exterior appearance, as will be noted

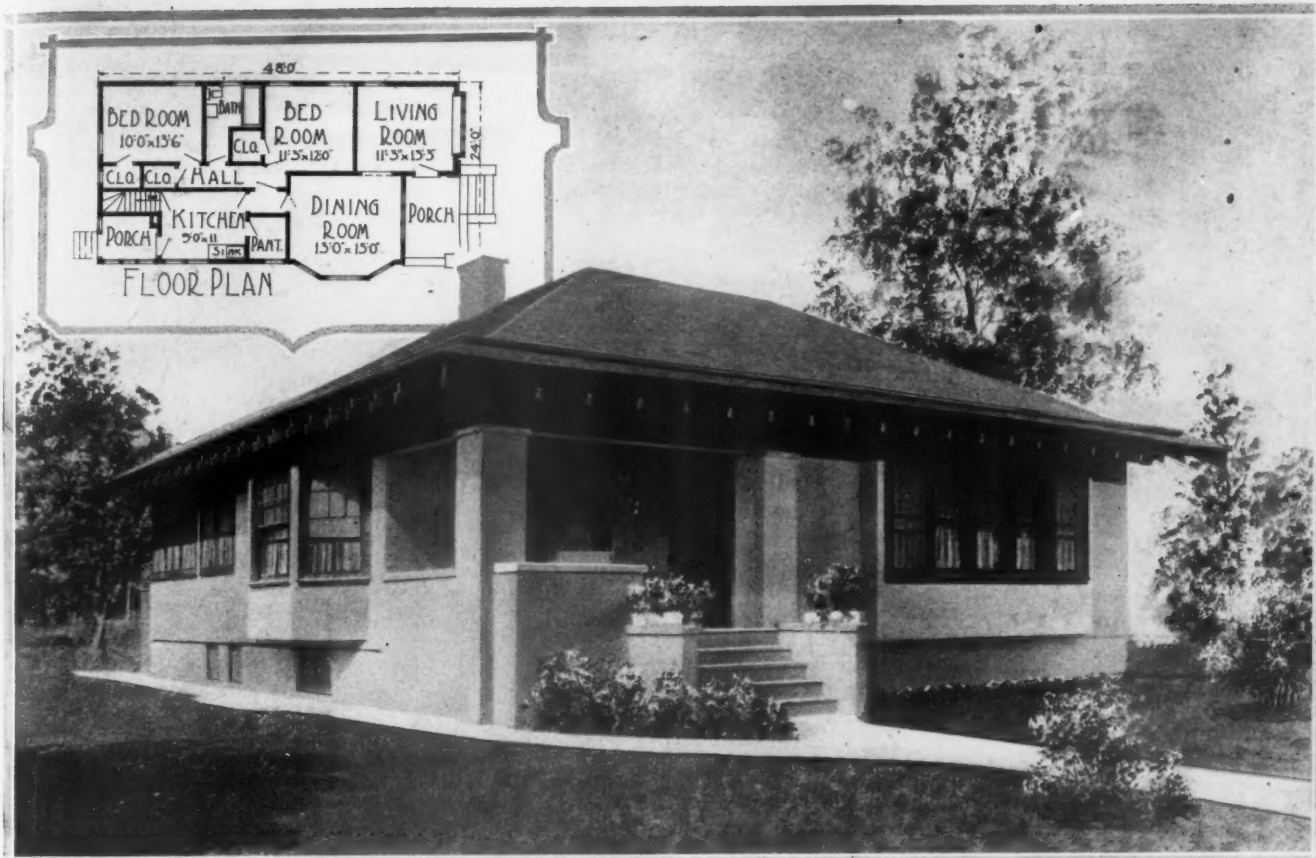
by the perspectives. Accompanying each is a floor plan, showing how well the rooms are arranged for comfort and convenience.

For the contractor who is consulting with prospective home builders, these designs will be found contract-getters. They offer a good variety of bungalows, both as to materials to be used and in the room arrangement.

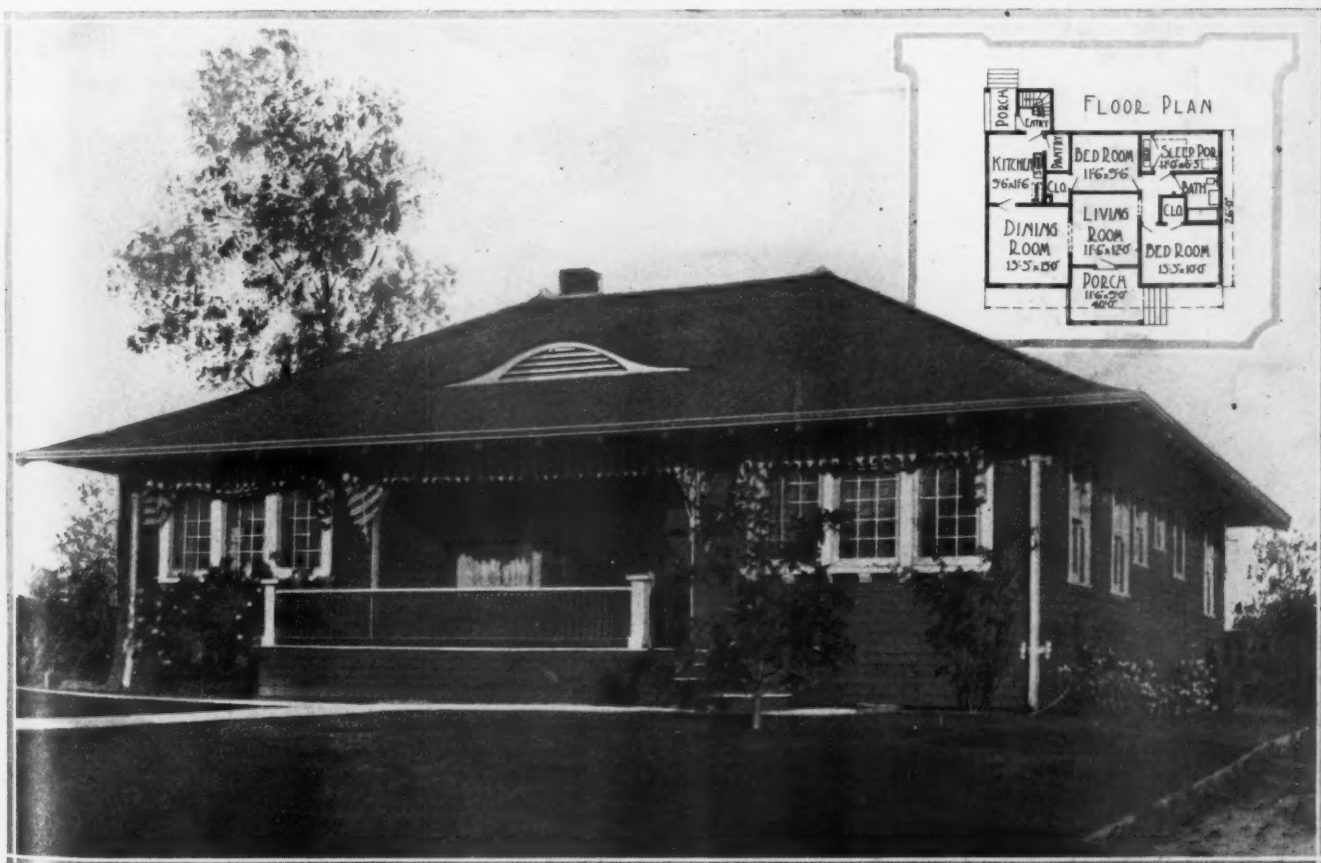
Each and all of these bungalows are attractive and will create a desire for a home in many prospects.



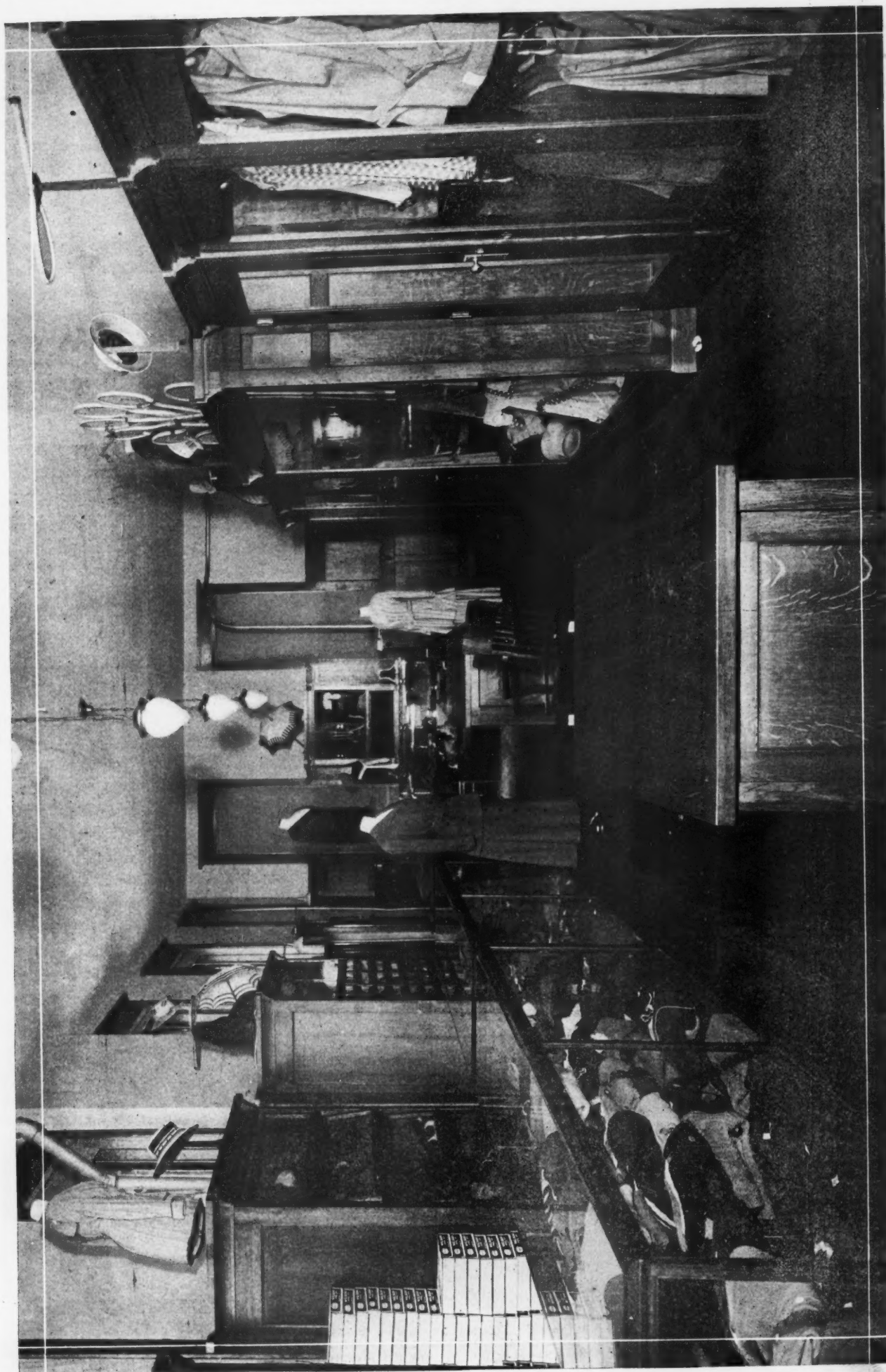
FIVE-ROOM BRICK BUNGALOW. The city home builder who wants an economical house that will go on a narrow lot will find this design excellent, as the dimensions are only 24 by 47 feet. The home contains five rooms, living and dining rooms, kitchen, two bedrooms and bath, all of fairly good size. The hip roof and the porch set into the corner make this an attractive home.



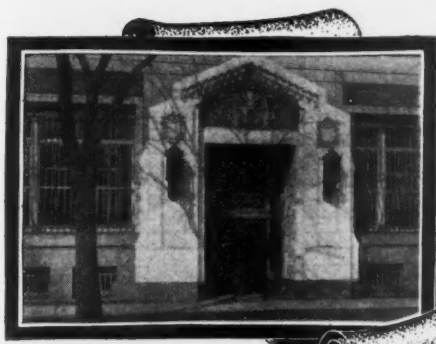
HIP-ROOM STUCCO BUNGALOW. The hip-roof stucco bungalow is a popular type of home with the prospective builder, because of its neat and substantial appearance. This design is an excellent one. The dimensions of the home are 24 by 48 feet. The bungalow contains five rooms and bath. The rooms all are of good size and are arranged for convenience and comfort. This is a small home, but is modern in every respect and will appeal to the builder.



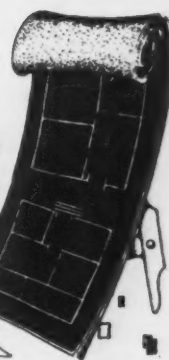
FIVE-ROOM HIP-ROOF BUNGALOW. Here is another excellent bungalow design. The front porch, hip-roof and window arrangement give it an attractive exterior, while the interior arrangement is exceptional. The dimensions of the bungalow are 40 by 26 feet. There are five rooms, bath and good-sized sleeping porch. For the prospective builder who wants a modern, convenient and comfortable home at a minimum cost, this design is good, and one that will find many strong admirers.



FIXTURES MAKE THE STORE INTERIOR. After the Contractor Has Completed the New Store Building, or Has Remodeled the Old One, New Fixtures, Wall Cases, Show Cases and Tables Are Needed to Give the Interior of the Store an Attractive Appearance and to Provide Display and Storage for the Stock. The Illustration Shows the Interior of a Store that is Especially Well-Equipped. Aiding the Store Owner in the Selection and Installation of these Features is a Profitable Side Line for the Builder.



ALL SORTS OF BUILDING PLANS



Design for a Doctor's Office

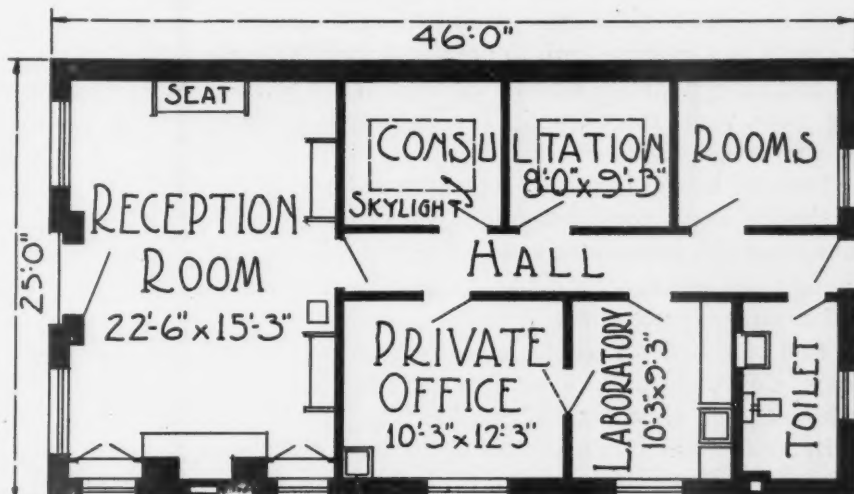
MEMBERS of the medical profession are specializing more and more, and now want offices where they can not only receive their patients for consultations, but install the many kinds of equipment and perform minor operations. The accompanying design was made especially for such doctors. The building is 25 by 46 feet, of standard brick construction, set on a concrete foundation.

The floor plan shows the layout of the rooms. The large reception room, three consultation rooms and the doctor's private office and toilet room are arranged for the convenience of the doctor and of his patients.

This is the sort of a design that will appeal to physicians and surgeons everywhere, especially in the smaller cities and towns where there are no office buildings designed

especially for the members of the medical profession.

While this building was designed for the use of one doctor, its room arrangement is such that it is suited to the needs of several physicians on a co-operative basis. This idea of several doctors having offices in the same building is growing.



Perspective and Floor Plan of a Brick Building, Specially Designed for a Doctor's Office. The Dimensions are 25 by 46 Feet. The Building Is of Standard Brick Construction, Set on a Concrete Foundation. The Rooms Are Arranged so That the Doctor Can Care for Several Patients at Once, and Perform Minor Operations.

Design for a Public Garage

REPAIRING and storing automobiles and supplying them with accessories and gasoline and oil is a rapidly developing business that has brought about a comparatively new type of building. For convenience, a great percentage of public garages are of one story, except in the larger cities where the real estate is more valuable. The interiors are without obstruction, requiring trussed roof construction to be employed.

The accompanying perspective and floor plan show a design for a modern public garage, 60 by 100 feet. The brick and terra cotta front make an attractive looking business building, while the interior is arranged to accommodate a number of cars and to provide for an office, an accessory sales room and a supply room at the front.

The floor, of course, is of concrete to eliminate as much as possible the danger from fire, while around the walls is a concrete curb to prevent damage to the car backed by a careless driver. At the rear is a washing space, with center drain. The building is lighted by alternate skylights on either side.

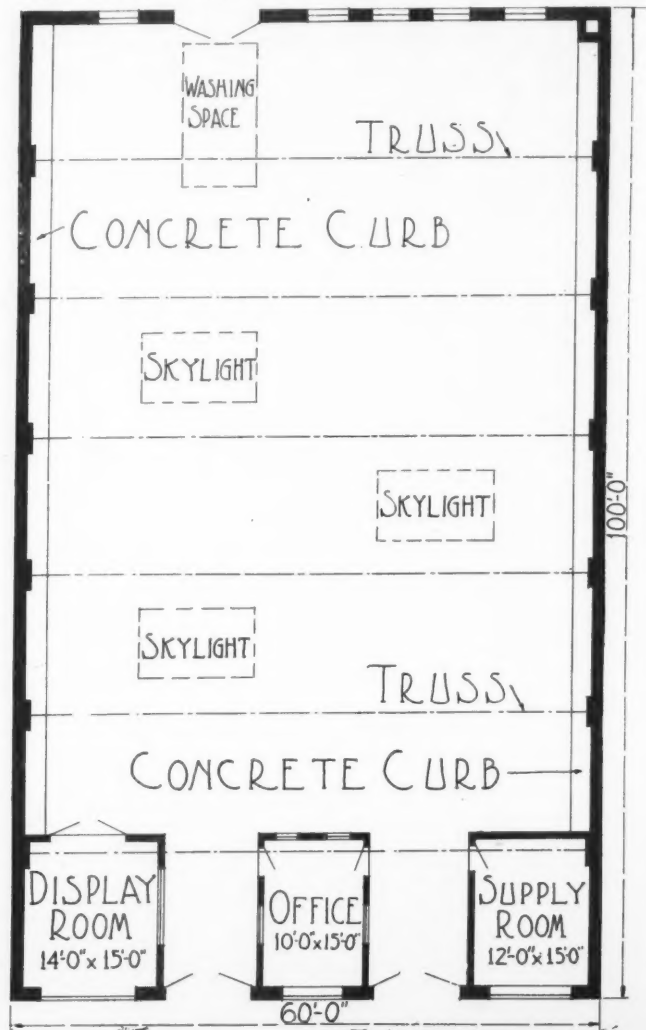
The roof trusses have a 60-foot span, and are either of lattice wood construction or light steel girders. These not only support the roof, but give the side walls rigidity and permit an unobstructed interior, an essential in garage construction.

Two sets of doors, either opening in or hung on a track, close the openings between the office and the salesrooms on either side of the building.

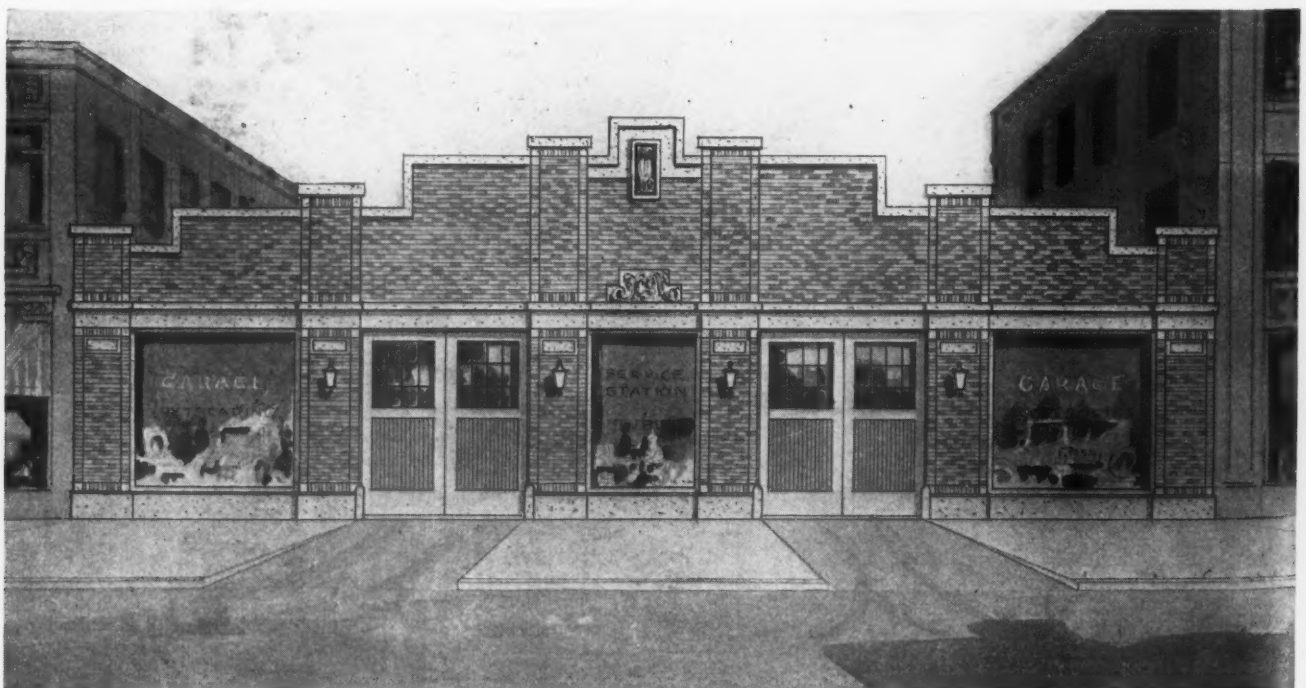
By building a curtain wall of hollow tile, or some other non-inflammable material, the rear of the building can be partitioned off for a workshop.

This is an excellent public garage design, large

enough so that the owner can do a profitable business and at the same time not so large that the building requires a considerable investment.



Floor Plan of a Modern Public Garage.



PUBLIC GARAGE OF BRICK AND TERRA COTTA. This design is for a building 60 by 100 feet. The irregular roof line and terra cotta trim give it an attractive exterior, while the interior is arranged so that the owner has salesrooms and office as well as storage place for machines.

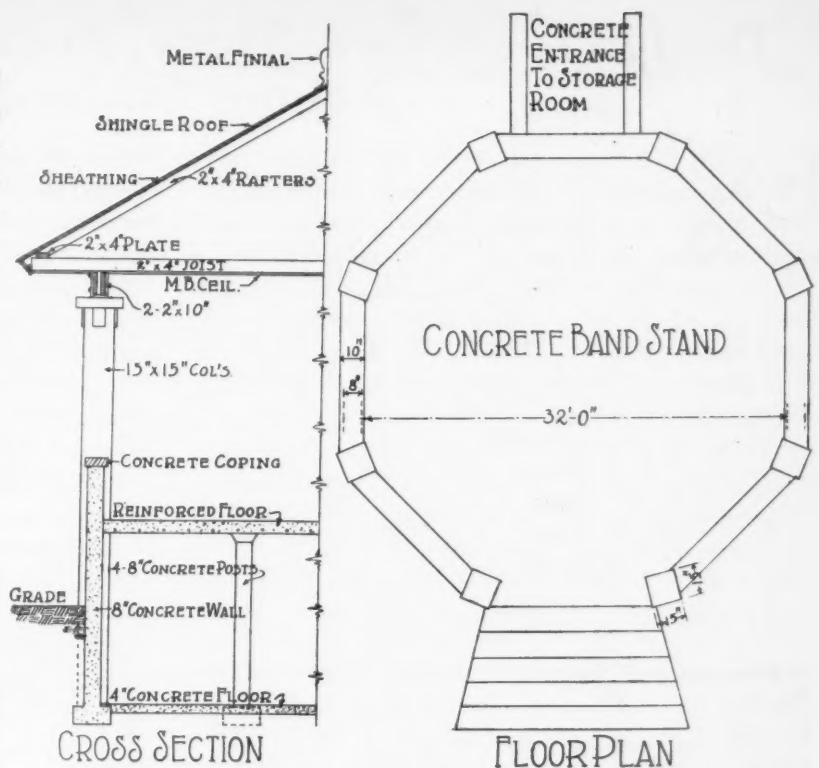
Design for Band Stand of Concrete Construction

WITH cities over the United States generally entering into contracts for street improvements, new municipal works of various kinds the wide-awake contractor may develop plans to increase his financial returns during the fall and winter thru the construction of band stands.

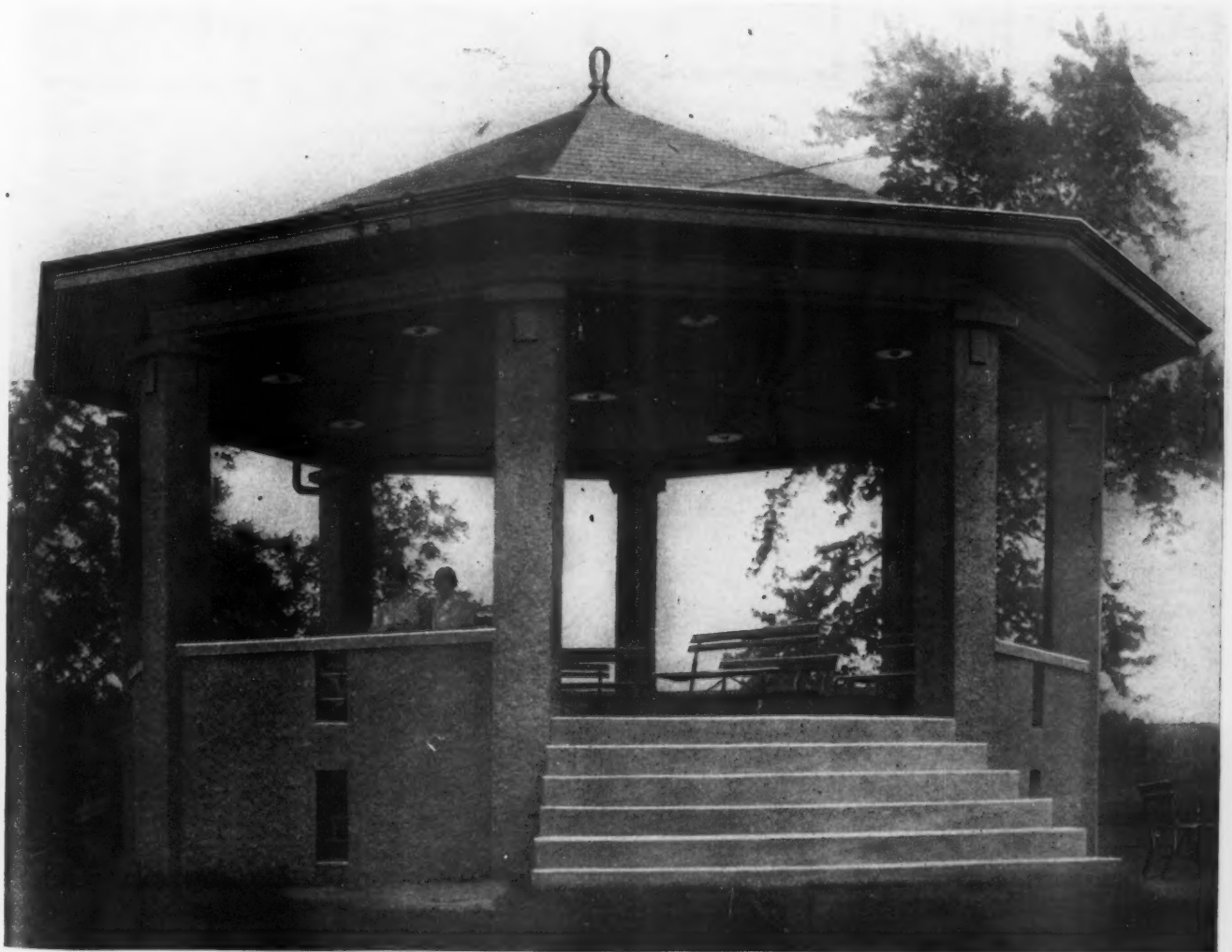
The illustration shows one in splashed stucco which can be erected at a moderate cost. It is in the form of an octagon, the inside width being 32 feet and amply large to accommodate a band of thirty-five or forty musicians.

This particular design has a basement under the floor, which is large enough to store benches, chairs, swings and other park equipment.

The side walls are 8 inches thick and there is a 10-inch coping around the top. There are six openings in the side walls directly above the vents which carry off rain water from the floor.



Floor Plan and Cross-Section of the Concrete Band Stand.



Design for a Rough Finished Concrete Band Stand, Such as Are in Demand for the Parks in All Cities, Large and Small. The Floor Plan and Cross-Section Show the Construction Methods Used.

Design for a Two-Story, Four-Room Modern School Building

ECONOMY in space and safety are two outstanding features in the modern school building designs. The accompanying perspective and floor plans of the new building of School District No. 105, in Cook County, Illinois, two miles south of La Grange, shows one of the latest school building designs.

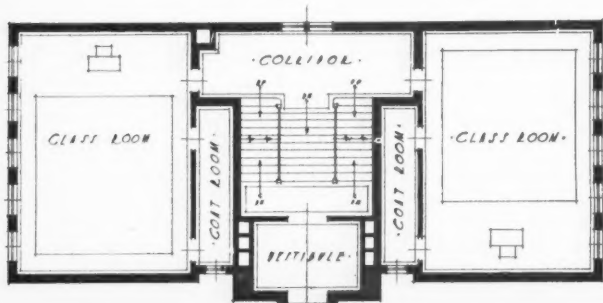
The building is of standard brick construction set on a concrete foundation. The dimensions are 79 by 34 feet. The plain exterior of the building is offset by the concrete sill courses and the blocks set into the walls and the broken roof lines.

There are two large class rooms, each 23 by 32 feet, on each floor, and over the vestibule on the first floor is the principal's office, 14 by 9 feet. The floor plans show the window arrangement, which allows light to

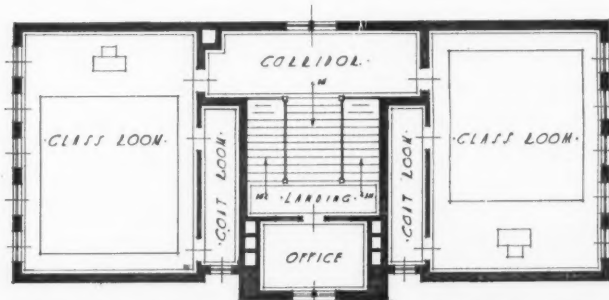
come in on only one side of the room. The desks are arranged so that the pupils get the light over their left shoulders. Ample coat room space is provided adjoining each room and the broad stairs and corridors permit a quick entrance and exit.

The basement accommodates the heating plant and provides space for a recreation room for the cold months, or can be used for any other purpose that the school board may want, such as gymnasium or manual training room.

This design is especially good for country school districts, as it is of economical construction, and, at the same time provides a safe, efficient and healthful building for the children, and, therefore, can be recommended to school building contractors.



First Floor Plan of Modern Two-Story School Building.



Second Floor Plan of Modern Two-Story School Building.



MODERN TWO-STORY, FOUR-ROOM GRADE SCHOOL BUILDING. The dimensions of the building are 79 by 34 feet. The floor plans show how well the rooms are laid out to provide proper light and ventilation. This is an excellent design for school buildings in rural districts and the smaller towns and cities. G. W. Ashby, Chicago, Architect.

"Baby Skyscrapers" a Profitable Bank Investment

CONTRACTORS IN SMALL CITIES FIND THAT ONE SUCH BUILDING CREATES BUILDING ACTIVITY IN BUSINESS SECTIONS

By Herbert C. Crocker

IT has been the experience of contractors time and again that the erection of one business building in a small city has started a building movement that has gone far. Other owners of business property have caught the idea quickly and have greatly improved their properties, either with new buildings or by remodeling the old ones.

What such a building means to a city of less than 10,000 population is shown by the experience of contractors and architects at Edwardsville, Ill. There the Bank of Edwardsville erected a "baby skyscraper," a building of five stories, the first being devoted to the uses of the bank and the upper floors arranged for offices.

Previously the city had only two and three story office and store room buildings, and when the Bank of Edwardsville announced it would spend \$100,000 for a new home with four stories of offices some building

owners looked at the plan rather skeptically. Some feared that the sudden increase in offices would make it impossible for them to ever rent their buildings again.

Starts a Building Boom

But they made a bad guess. Instead the "baby skyscraper" worked just the opposite way. It helped make the business center of the city more permanent and placed real estate values on a more solid foundation. Barely had the office building been completed before a public building costing \$300,000 was built across the street.

Uncle Sam became ashamed of his post office and erected a new federal building costing \$70,000. The site selected was only a block away. Then other owners began to realize they would have to remodel to keep abreast of their neighbors and a great deal of improvement resulted, all because the bank needed a new home and did something out of the ordinary.

The bank is located on a lot valued at \$25,000 and the building cost approximately \$70,000. George W. Meyer, president of the bank, is the authority for the statement that the receipts, including the saving in rent to the bank, are approximately \$7,000 annually or 7 per cent on the investment.

The building has been a success even before it was completed. During construction leases were made for office space and the owners have had little difficulty in keeping the building filled since ready for occupancy.

The most remarkable part is that the office building has had no bad effect on other desirable offices in the city and no reduction in rents has occurred. Other office renters have increased the size of their suites, so again the "baby skyscraper" has helped.

The bank officers considered the new home from various angles before reaching a decision. An exclusive banking house would cost \$25,000 to \$30,000. Two stories would be little better than one and that proposition was passed. Three stories would necessitate an elevator, and in going



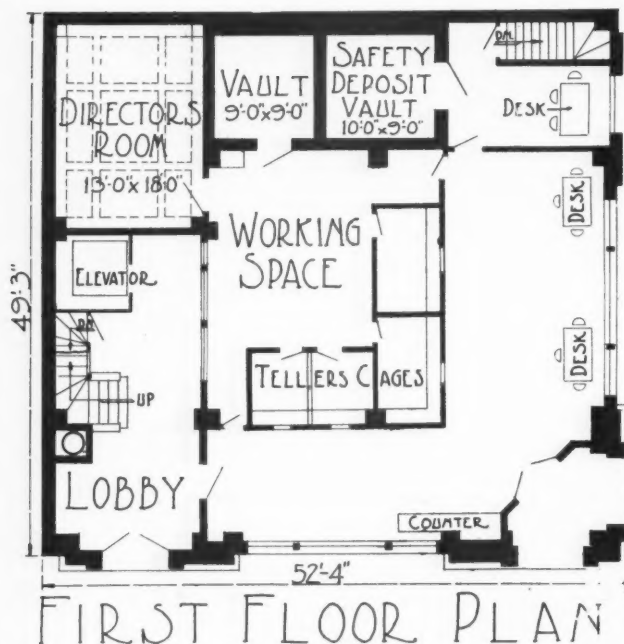
The New Home of the Bank of Edwardsville, Edwardsville, Ill. The Extensive Use of Terra Cotta, Coupled With Face Brick, Make this a Most Attractive and Impressive Building. Two Features a Bank Demands. The Building Is Five Stories High, the First Floor Being Occupied by the Bank and the Upper Floors Divided Into Offices. The Dimensions Are 52 Feet, 2 Inches, by 49 Feet, 3 Inches. Structural Steel Construction Was Used.

that far it was decided to put on a couple more.

A Description of the Building

The dimensions of the building are 52 feet 2 inches by 49 feet 3 inches. The outside of the building is constructed of terra cotta and buff brick. Two massive pilasters of the Ionic order and other portions exposed to view are after the French Renaissance effect and are very pleasing. The building is approximately 80 feet high.

The basement is used for storage purposes by the bank and one section for the heating plant. A greater portion of the main floor, all except the lobby, is utilized by the bank. There are 26 office rooms on the four upper floors.



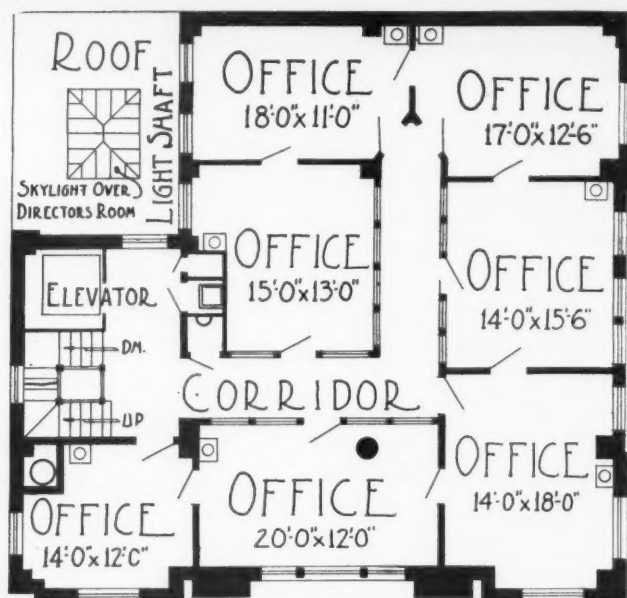
Plan of the Banking Room on the First Floor of the Bank of Edwardsville Building.

The basement is 15 feet deep, and with other parts of the building is as near fireproof as possible. Directly under the bank vaults is another used for storage of various records. The remainder of the section is arranged for the convenience of the bank. There are two stairways, one from the banking room and the other from the lobby.

A space 34 by 49 feet 3 inches is used for the bank. One corner 14 by 19 feet is set apart as the directors' room and is entered thru the bank. It is directly at the rear of the lobby.

The bank has two entrances, one from the outside corner and the other thru the lobby. The floor and permanent fixtures are of marble, reducing the cost and labor of keeping them clean to a minimum. When completed the fixtures were declared the finest in Illinois outside of Chicago.

The banking room is well-lighted and ventilated. A two-foot air chamber is built between the ceiling and second story floor. The ceilings are 18 feet 6 inches high.

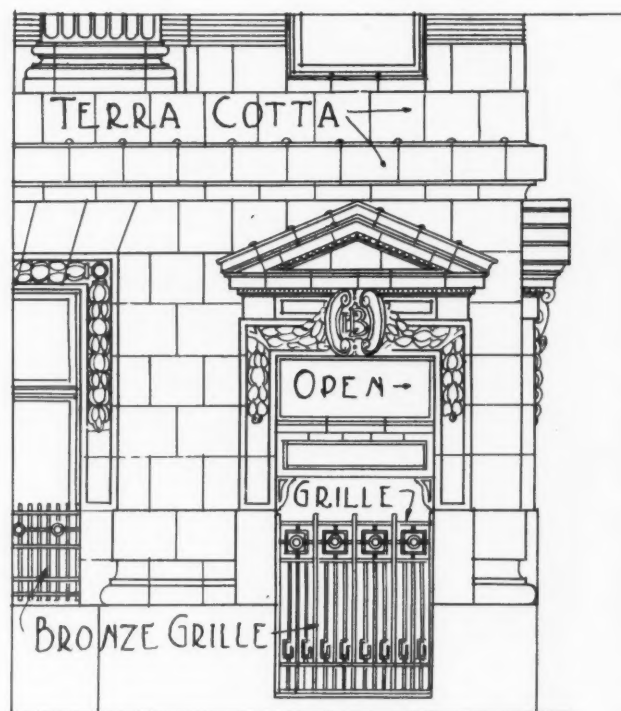


TYPICAL FLOOR PLAN

Typical Plan of the Upper or Office Floors of the Bank of Edwardsville Building.

Office Floor Plans Elastic

Office arrangements on the second and third floors are pretty much the same, each having seven well-arranged rooms, and suites may be arranged up to that number if desired. Usually they are in two and three rooms each. The ceilings of the second, third and fourth floors are 11 feet high.



CORNER ENTRANCE DETAIL

Detail of the Corner Entrance of the Banking Room of the Bank of Edwardsville.

Arrangements on the two upper floors are the same but the ceilings on the fifth floor are ten feet high. Retiring rooms for the ladies are provided on the fifth floor and the men's toilet is on the fourth floor.

With the exception of a mail chute the building has all conveniences of the metropolitan office building. The lighting and ventilating plans are well arranged and tints given the walls and ceilings are those believed the least injurious to the eyes and to aid in better lighting.

The electric lighting is well arranged and the switch boards on each floor as well as the individual switches seem to be in the most convenient places.

Office renters as well as others using the building have hot and cold water and gas if they wish to use it.

The cost of maintenance has been very small. Two men are employed and they operate the elevator, take care of the furnace and attend the other janitor service. The same number would in all probability be needed had the building been three or less stories high.

The building was designed by Clymer & Drischler, architects, St. Louis, Mo. Albert Fahrig, of Edwardsville, was the contractor.

A Plea for Better Nails

By J. M. KANE

Master Carpenter, Watertown, N. Y.

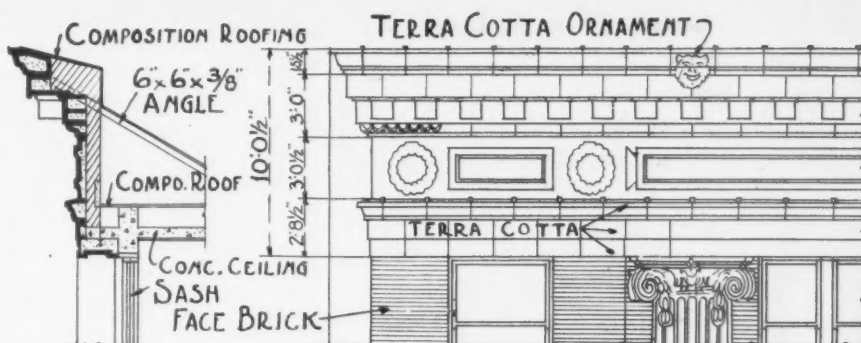
I WISH to revive the department of Better Work as it was formerly conducted in our valuable magazine. Not having seen anything from my brother workmen of late, I will try and start something along that line, hoping it may be of mutual help, and will call out some discussion on its merits. My plea will be for this article one which I think of much importance—*Better Nails*.

I have found after thirty years' experience in all sides of carpentry, both in the shop and out, that the nails we are now compelled to use in most cases are very short lived, especially if in exposed places, such as roofs, verandas, platforms, sides of buildings exposed to much rain, etc.

I have always contended that the steel wire nail is a complete failure for such use, and that we should return to the common iron nail. If not, then surely we should have a galvanized steel nail for all outside work.

It is my experience, especially in reshingling roofs, that the old cut nails formerly used did not rust off nor did they corrode and rot the shingles as the wire nails invariably do.

A short time ago I had to re-cover a roof with red cedar shingles that had been covered with good pine shingles put on with cut iron nails thirty-five years ago, and I found the nails perfectly sound and as good as the day they were driven. Furthermore, nails that had



SECTION & ELEVATION OF CORNICE

Section and Elevation of the Cornice of the Bank of Edwardsville Building.

been used on the same roof when the house was built some sixty or seventy years ago, were perfect—no corrosion. I am sure that fact is indisputable proof of the superiority of iron over the steel nail for roofing.

I lost some work the past year simply because I would not use the little three penny wire nails on my work which so many of my competitors use; thereby doing the work quicker and cheaper: more to the pound and easier to drive. Whereas, I use the galvanized 3s, which will not dust off in a great many more years than the common. I think it's very dishonest for any carpenter not to tell his customers who may come to him about the bad quality of the ungalvanized shingle nail, and the economy of using the somewhat costlier galvanized.

In my part of the country we have much stormy weather, especially in the fall and winter months, which, combined with coal gases and soot and smoke, seems to have a very bad effect on the nails, causing the shingles to become loose and leaky, caused solely by the nails rusting off.

My own house had to be reshungled from that cause while the shingles were perfectly sound, costing me a large expense that would not have been had the builder been honest enough or wise enough to have used proper care in the sort of nails he used.

Again I learn that one of the great reasons for the rapid decay of verandas is from the use of common wire nails rusting out, letting in water to the sills and flooring, bases of columns, and the like.

Should not architects take this matter up with the nail makers and try to get them to perfect a non-rust nail of soft iron, or some suitable metal? They certainly could force the use of galvanized nails on all outside work by specifying them in all their work. I never yet saw a set of plans where such was the case. I know some carpenters don't like to use them because they are rougher to handle. There are two sorts on the market—galvanized and coated. The coated seems to be much smoother and easier to handle, but I can't vouch for the lasting quality of the latter. I should like to hear from my fellow workmen some of their ideas along this line.

Blue Prints of an Eight-Room Colonial House

FLOOR PLANS, ELEVATIONS, CROSS-SECTION AND DETAILS OF MODERN RURAL HOME ARE CONTAINED IN THE FOUR-PAGE, BLUE-PRINTED SUPPLEMENT THAT FOLLOWS

BETTER designs from an architectural standpoint now are being demanded in the rural districts where there is great building activity. The farmer, prosperous thru the good prices he is getting for his products, wants a modern, up-to-date home conveniently arranged and containing the comforts that will give him and his family the greatest satisfaction.

There is no type of architecture that is more popular than the Colonial. The exterior of a Colonial house, with its well-balanced simplicity, makes a most attractive home, and allows for a room arrangement that conforms with the modern ideas of what the interior of a house should be.

A Fine Colonial Design

The design shown by the accompanying illustration is an eight-room Colonial house, to which has been added a wide front porch, with a deck roof. The picture shows what an attractive home this is, while the plans contained in the blue print supplement that follows show the room arrangement and how the house is constructed.

This house 40 by 26 feet in dimensions, is of standard frame construction, set on a concrete foundation.

The screened porch is 40 by 8 feet. The perfect balance of the house is maintained inside as well as out. The front entrance is into a reception hall, placed in the exact center of the house, and out of it leads the stairway to the second floor.

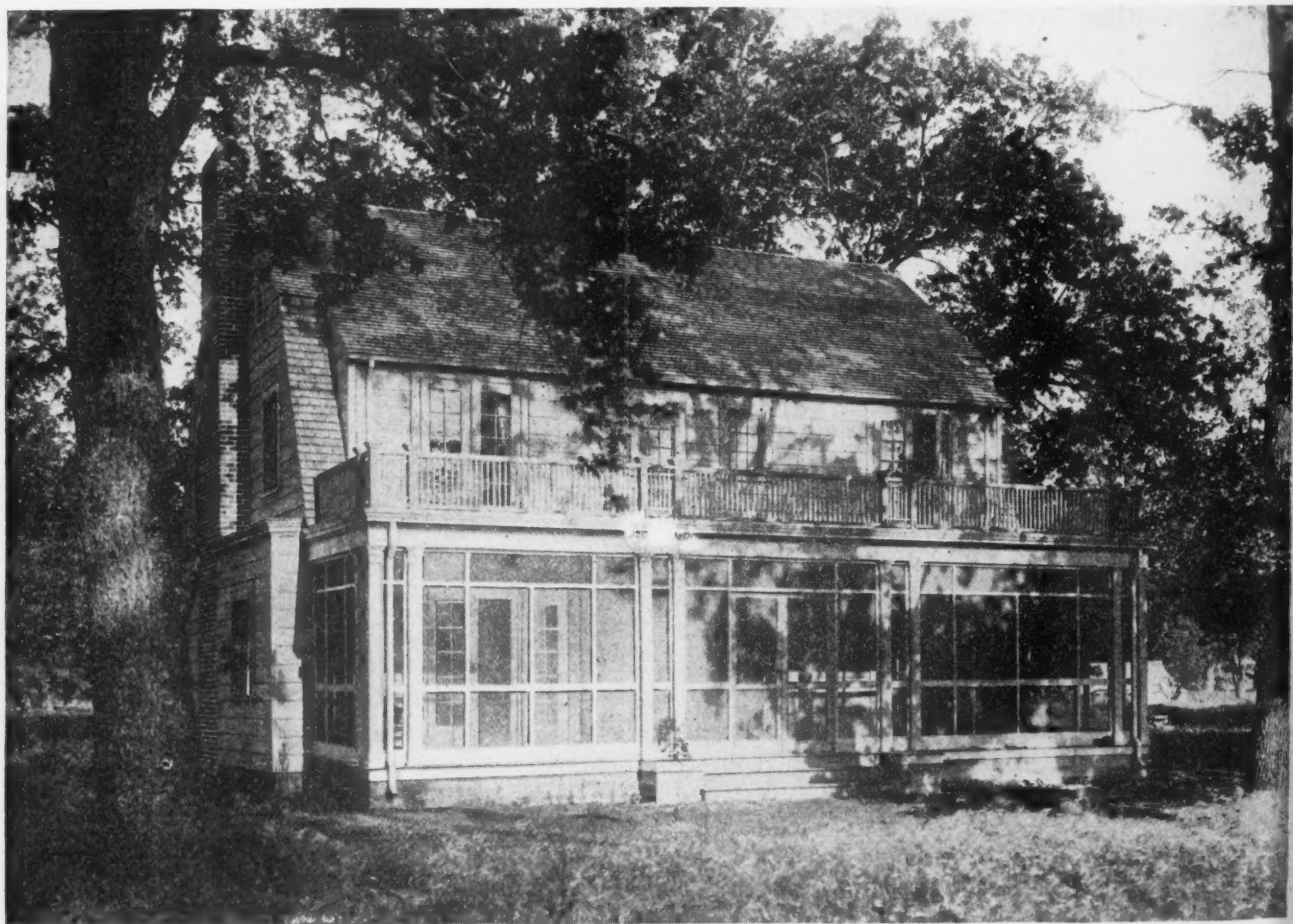
Room Arrangement Convenient

On either side of the reception hall are the living and dining rooms. The former is 15 feet 6 inches by 14 feet, and the latter is 15 feet by 12 feet 3 inches. Back of the living room is a bedroom, while at the rear of the dining room is the kitchen. Between the latter two rooms is a wash room, and adjoining is a toilet room. The pantry extends out 6 feet, and beside it is a rear porch, 12 by 6 feet.

On the second floor are four bedrooms and the bathroom, all opening out of a central hall. A good-sized closet is connected with each of these rooms.

Details in the blue print supplement will show the builder how many fine built-in conveniences are featured with this design.

This is an exceptional good design for the rural family that wants a good-sized house with all the modern conveniences.



PERSPECTIVE OF EIGHT-ROOM COLONIAL HOUSE. Here is a fine Colonial house with a wide front porch, which has a deck roof. The dimensions of the house are 40 by 26 feet. Eight good-sized rooms are shown in the floor plans, which together with elevations and details are shown in the Blue-Print Supplement following.

IN

ce
he
he
ir-

nd
14
ck
of
ter
let
is

th-
red

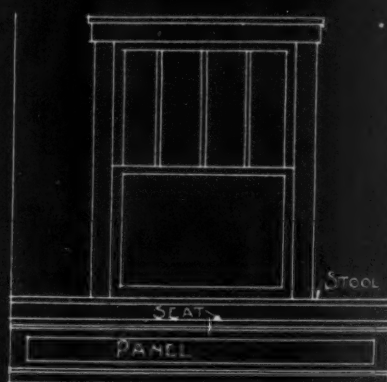
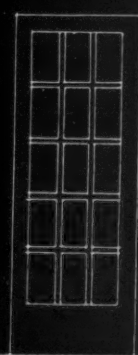
he
at-

ral
the

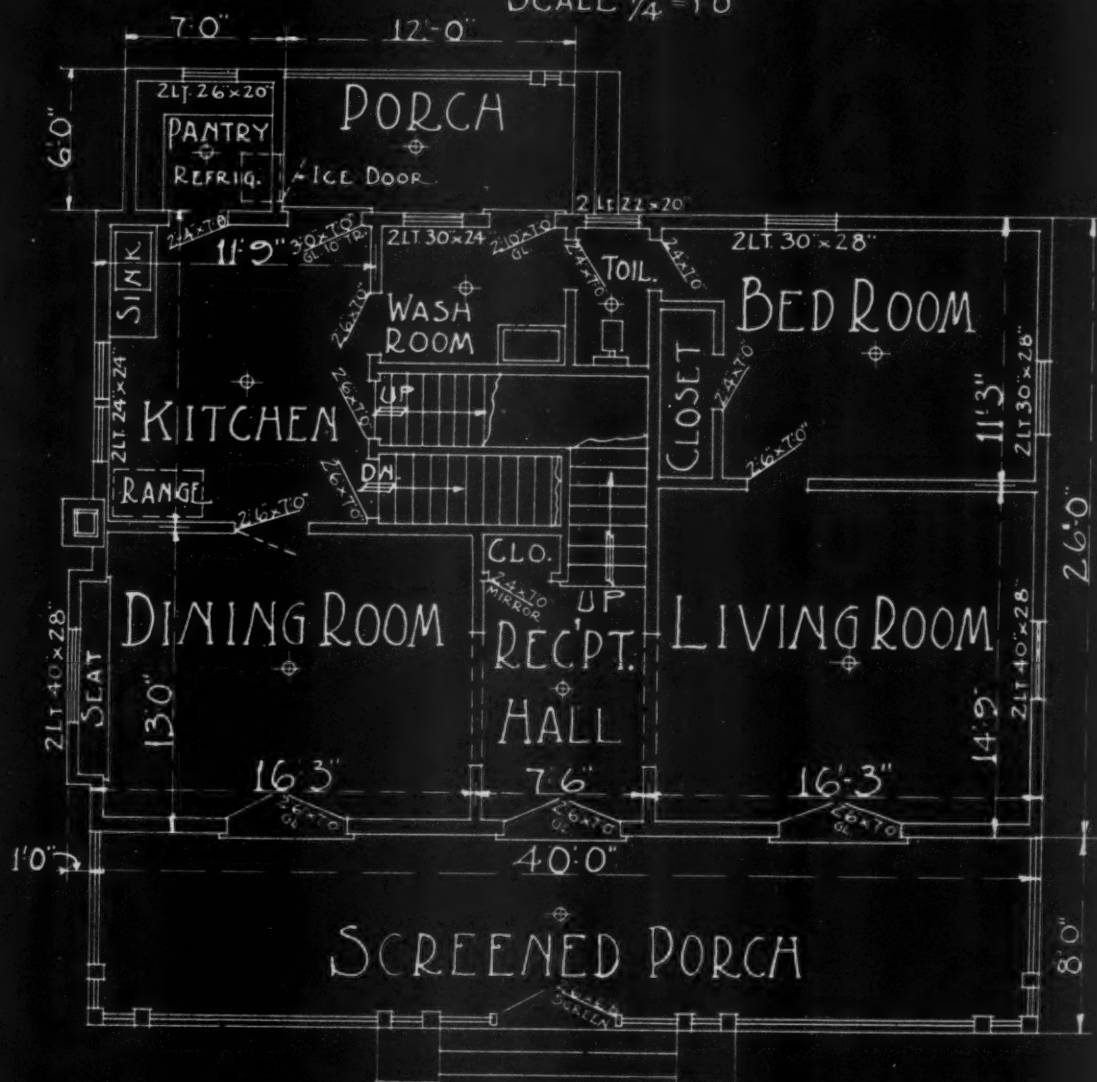


leek
eva-

AMERICAN BUILDER BUILDING PLANS



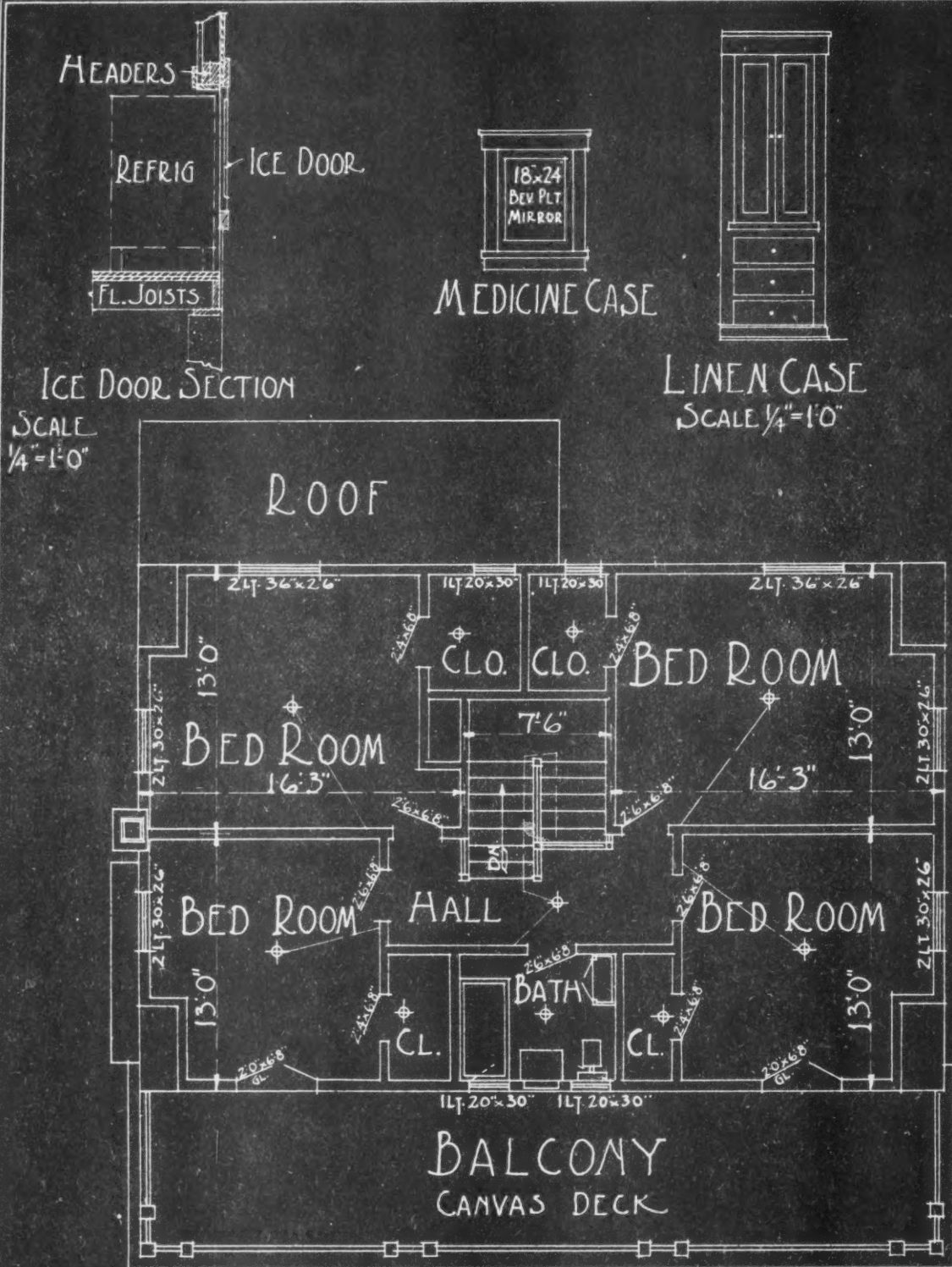
• TYPICAL DOOR • FRENCH DOOR • MIRROR DOOR • DINING ROOM SEAT •
SCALE $\frac{1}{4}" = 1'-0"$



FIRST FLOOR PLAN
SCALE $\frac{1}{8}" = 1'-0"$

8 ROOM COLONIAL RESIDENCE SHEET N°1

AMERICAN BUILDER BUILDING PLANS



SECOND FLOOR PLAN

SCALE $\frac{1}{8}" = 1'-0"$

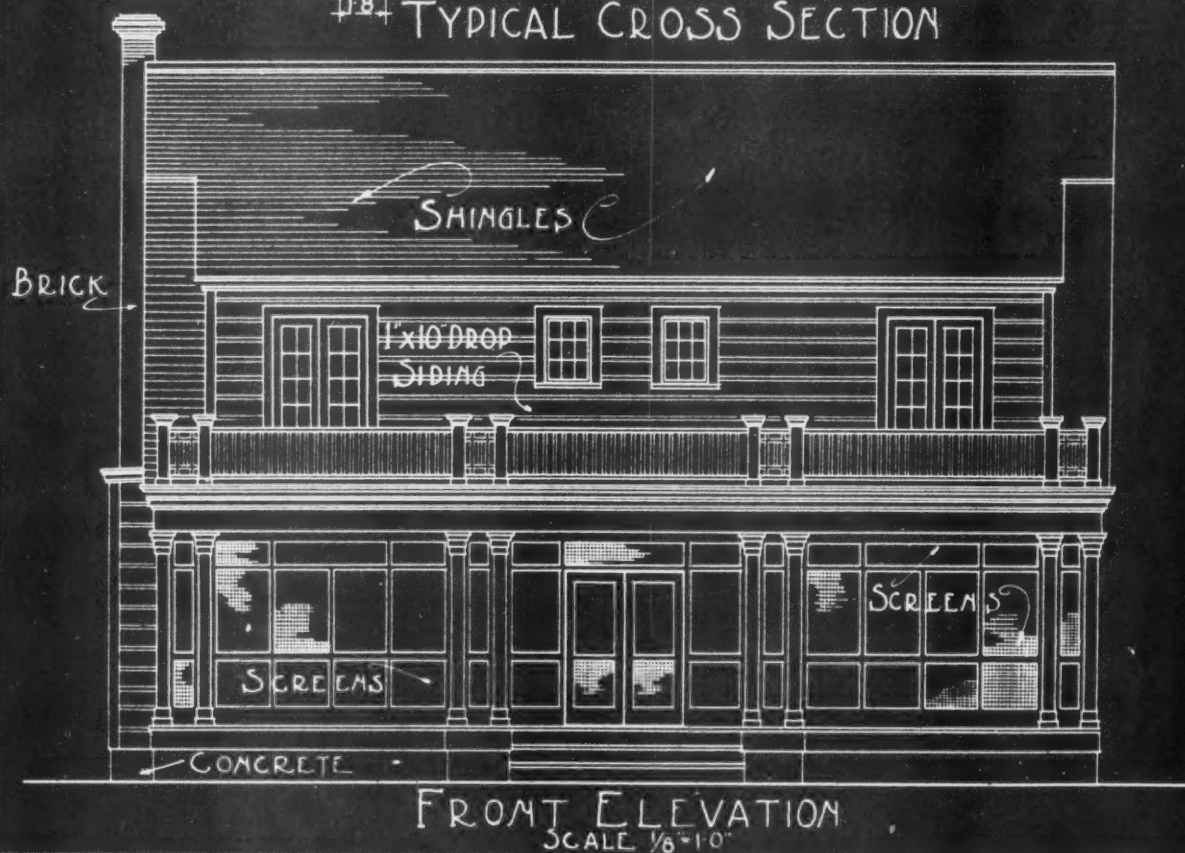
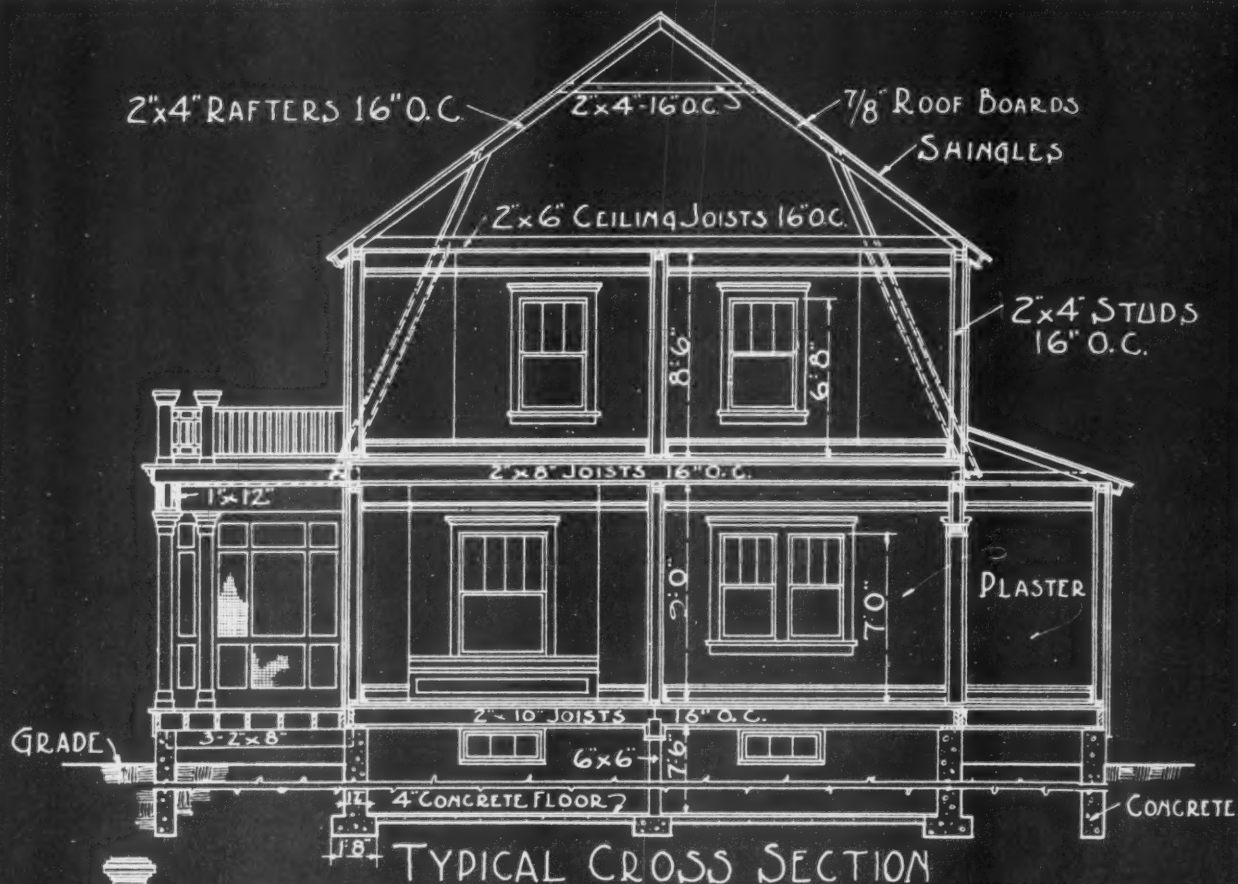
8 ROOM COLONIAL RESIDENCE SHEET N^o 2

2



8 ROOM COLONIAL RESIDENCE SHEET N°3

AMERICAN BUILDER BUILDING PLANS



8 ROOM COLONIAL RESIDENCE SHEET N°4



Fred Beard says:

**“Who’d A’ Thought You Could
Sell Building Hardware
to a Bank?”**

SAMUEL ELY, president of the First National Bank, stopped as he was about to enter his private office to greet the alert man who was just entering the bank. For more reasons than the fact that the newcomer was a good customer of the bank did Mr. Ely make it a point to converse with him. During the last few months this man had been starting things—had conceived ideas that had proved sound in theory and had put them “over,” as the saying goes. But what interested the bank president most was that they had meant something toward the prosperity of the city, and more than incidentally to the bank.

“How are you today, Mr. Beard?” inquired Mr. Ely as he stretched out his hand and grasped that of Fred Beard, hardware dealer and live-wire citizen of their city. “How’s the home building campaign coming along?”

“It isn’t coming, it’s here,” replied Fred. “The people of this town are building a home a day. I roughly estimated only yesterday that there are in the neighborhood of \$20,000 worth of homes now under construction in our fair city.”

“Home Building Is an Evidence of Prosperity,” Said the Banker

“Good work; great work,” replied the banker. “Home building is an evidence of prosperity that cannot be denied. Every home owner is a better citizen. True, it takes some money out of the banks, but it is not lost; it comes right back in the commercial accounts, and at the same time is doing great good to the business life of the community. Yes, sir, good buildings, whether they be homes or business buildings, are a great asset to a city; something that we all will realize on in the future.”

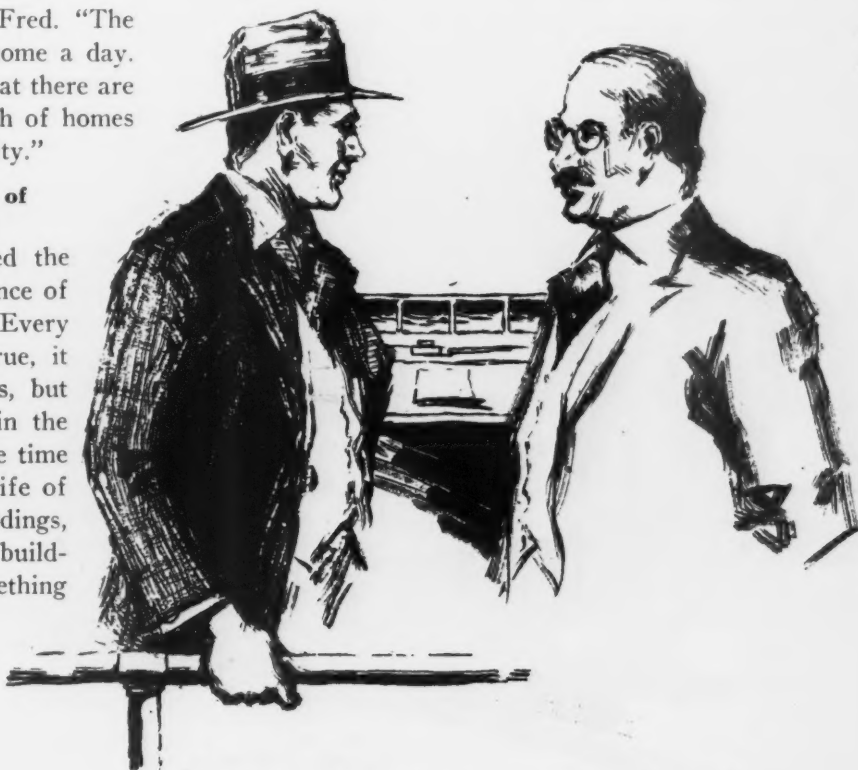
“True, absolutely true,” replied Beard. “And because what you have said is so true, I can’t figure out why some of you prosper-

ous business men don’t practice what you preach.”

“What do you mean?” rather huffily inquired the bank president. “Never have you found me or my associates backward about doing those things that are for the welfare of this city.”

“Oh, I didn’t mean that,” replied Fred. “What I meant was that I have been wondering lately why some of the business men of this city didn’t go ahead and build modern homes for their businesses, just as nearly a hundred substantial citizens are now erecting modern homes for their families.

“Did you ever stop to consider, Mr. Ely, what it would mean to the business and prestige of the First National Bank if it was housed in a modern building instead of this old two-story brick structure? By a modern building I mean one that has plenty of room for the bank’s business, and on the upper five or six



“Good Work, Great Work,” Said the Banker to Fred Beard.

floors offices that will attract the business and professional men of the city.

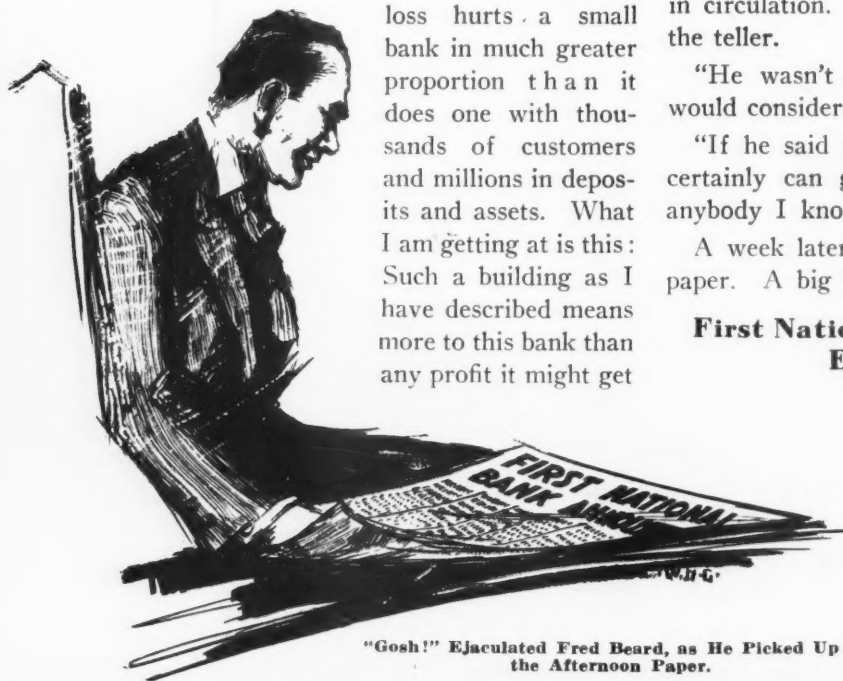
Fred Beard Outlines His Plan

"This town has been progressing; everybody is prosperous; and prosperity brings new ideas of how and where business should be transacted. There are twenty attorneys in this city scattered about in twelve or fifteen buildings in different parts of the business district. There are a like number of doctors, many of whom would like to have their offices where it would be convenient for their patients to call on them. Then there are the dentists, the architects, the real estate dealers, all who are just waiting for some progressive man or institution, like your bank here, to put up a modern building, with modern conveniences. They would welcome such a building and would flock to it."

"But," replied Mr. Ely, "we are not in the real estate or building investment business. I and the directors and officers of the bank do not believe that a bank should go outside of its legitimate channels in making investments. That may sound old-fashioned—conservative, undoubtedly, you would call it—but that is the basis on which this bank has prospered and has never defaulted on the trust the people of our city have placed in it."

"That's just the point," replied Beard. "Bankers are only human; they are bankers because there is profit in the banking business. No one begrudges the bankers that profit. We need banks—couldn't get along and do business unless we had them. But the more business a bank does, if it sticks to legitimate business, the more protection it gives its stockholders and its depositors. A mistake in judgment

and the consequent loss hurts a small bank in much greater proportion than it does one with thousands of customers and millions in deposits and assets. What I am getting at is this: Such a building as I have described means more to this bank than any profit it might get



"Gosh!" Ejaculated Fred Beard, as He Picked Up the Afternoon Paper.

from the investment. Don't you see that your bank would be the center of business activity in this city? On the upper floors would be the men who are the real mainstays of banks—the men who are doing things that attract people to their offices. What is more natural or more convenient than for the people who have business in your building to do business with your bank?"

The Bank President Grabbed the Idea

"Well, we had thought about erecting a new building," said President Ely. "But the idea you have advanced has never been brought into our deliberations on the subject. Our idea was a rather solid, conservative sort of a building—one that would give the impression that this institution is sound. But now that you bring it to my attention, I can see how the gathering together under our roof of the substantial, prosperous business and professional men of the city, and drawing here the people with whom they do business would be a good thing for the First National Bank. I'll put your idea before our board of directors at our next meeting. I wouldn't be surprised if something came of it. Thanks for the suggestion."

"Don't mention it," responded Fred, "you certainly are welcome."

"What were you telling the chief that had him so interested, Fred?" asked the receiving teller as Fred Beard shoved his bank book and deposit under the wicket.

"Oh, nothing in particular; just giving him a tip on how he could add a few hundred depositors to those now on your books," said Fred.

"You did, eh? Well, that's an idea he has been hunting for ever since there has been so much money in circulation. Did he like your suggestion?" added the teller.

"He wasn't particularly enthusiastic, but said he would consider it."

"If he said that it's as good as settled. Mr. Ely certainly can grab a good idea more quickly than anybody I know."

A week later Fred Beard picked up the afternoon paper. A big headline caught his eye—

First National Bank Announces It Will Erect Office Building

President Ely Outlines Plan to Give City a Modern Structure, with Banking Room on First Floor and Offices Above

"Gosh!" ejaculated Fred Beard. "I sure am the grand little starter in this town. But—who'd a-thought you could sell building hardware to a bank?"

Houses on Milford Shore Wrecked

FREAK RESULTS OF UNUSUAL STORM

By Harry F. Oldack

A STATE of almost total wreckage exists on the stretch of shore covering several miles which lies between Walnut Beach and Silver Beach, in the town of Milford, Conn., as result of a northeasterly storm.

This storm brought wind and rain of unusual violence, causing much damage to cottages that are on the water front. The majority of these cottages were an easy prey to the violence of the storm, as they were built mostly for summer occupancy. But owing to the scarcity of rents in Bridgeport where the large

six cottages where the chimney foundations were washed away and left the chimneys hanging in the house.

One property owner on this beach was what you



Photo 1. Shows Washed Away Pier Foundation and the House Was Left in this Position.

ammunition shops are, the workmen had sought shelter in these summer cottages.

If the readers will look closely at the photos they will notice the wood posts that hold up these cottages; these wood posts were not over 3 or 4 feet in the sand. The extra high tide and the wind blowing with the tide caused a number of these wood piers to give way, and as the result a large number of these cottages were either tilted or fell to the ground.

Most all these cottages have brick chimneys, and a number have stone fireplaces. Directly after the storm the writer went along the beach and counted



Photo 2. What Remained of a Bungalow that Was Set on Wood Piers.



Photo 3. This Summer Hotel Lost Part of the Porch.

might call wise, as he had a stone foundation laid all around under his house, not only for a cellar but mostly to keep out the cold winds of winter. When the storm was raging at its height, carrying broken furniture, pieces of houses and porches, many pieces of this debris rammed against the foundation, knocking out the cellar sash, with frames. When the tide went out the owner found his cellar full of broken furniture, etc. But the foundation stood the storm well.

In Photo No. 1 is a house that fell when the wood

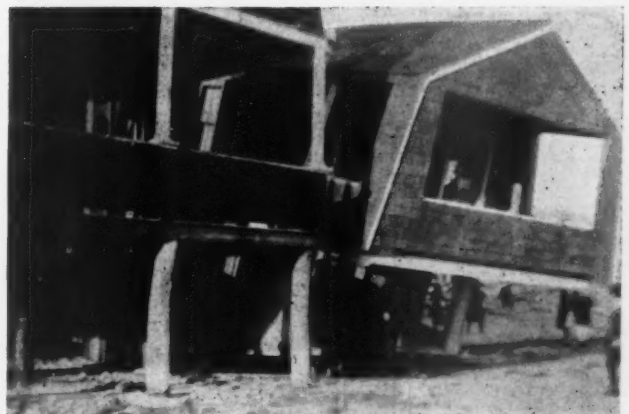


Photo 4. Another View Showing Work of the Storm.

piers were washed away. And the peculiar thing about this house is the feeling one has when he enters or tries to go thru the house. You get dizzy and sick and cannot walk straight. When you try to walk upstairs you stumble and fall. Some come out sick. Some people think it was the gas in the house when the gas pipe broke. But the writer went thru this house four days after, when all gas pipes were shut off, and the feeling was still there. I believe the cause of this peculiar feeling lies in the position of the house

(Continued from page 114.)

A Pull-Out Table for the Small Kitchen

HOW TO CONSTRUCT A POPULAR BUILT-IN FEATURE

By Henry Simon

THE modern tendency toward small kitchens that are, however, complete, thoroly equipped and possessed of plenty of available working space taxes the ingenuity of the designer.

Not the least of the difficulties encountered here is the problem of providing sufficient space for a work table, which is usually required in addition to the surfaces afforded by drainboard and cupboard top, for the reason that the latter are too high to sit down by, besides being wanted for other purposes.

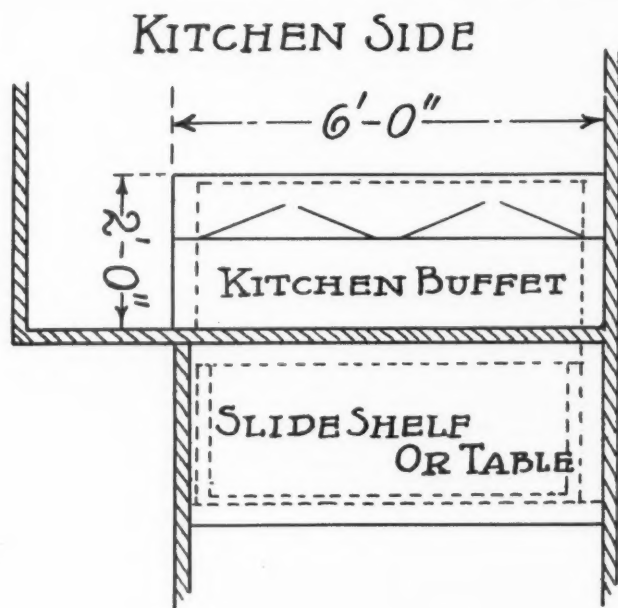
On the other hand, in a kitchen 10x10 feet, an ordinary table of any size is in the way much of the time; and many modern kitchens are even smaller, especially those found in small apartments, bungalows and summer cottages. There one feels that the only table would be one that absolutely disappears, and is quick about it.

This is the characteristic of the pull-out or drawer-table shown in the illustration. While the construction it necessitates may not be practicable in every house, there are a great many instances where it can be introduced without any material alteration of the plan.

Table Part of Built-In Kitchen Cupboard

As will be seen, the table forms part of the built-in kitchen cupboard, and the construction needed for it is little more than that necessary for a pair of drawers. It is necessary, if this table is to be installed, that some other small room, such as a closet, pantry, or store-room, or else a space under the stairs or some built-in feature, adjoin the wall against which the kitchen buffet is built, in order to accommodate the rear portion of the frame. In the particular instance shown, this is effected by running the table thru a partition wall into a pantry, the

rear construction there being wholly covered by a table or wide shelf, such as would be needed anyway in such a room. There is not a foot of space lost; and it will be found that similar and even better



PANTRY OR CLOSET SIDE

Plan Showing How the Kitchen Cabinet Is Built Into the Wall.

expedients offer themselves in a surprisingly large number of cases.

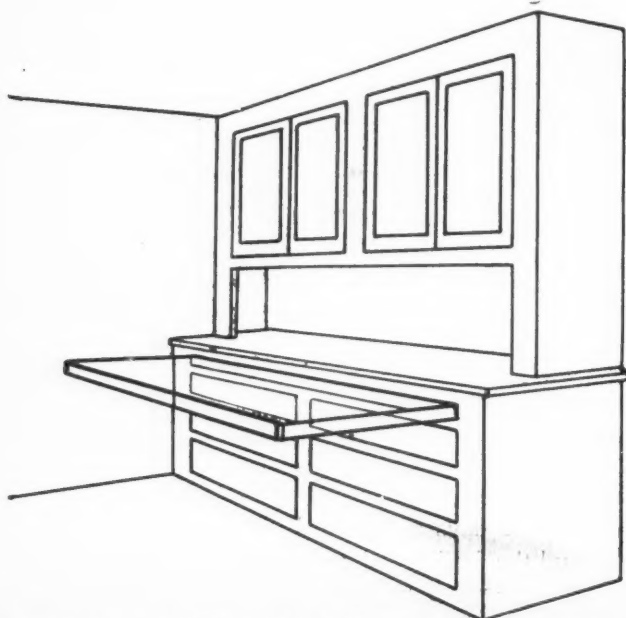
How the Table Is Built

The table itself consists of a frame made up of two pieces of 2x3, connected by two pieces of 1x3, with one or more ribs of 2x3 dividing the space, depending on the length. At their front ends, all the 2x3 pieces are cut down about half their length to accommodate the table top, the surface of which should be flush with the top edge of the remainder of the frame.

The table-top is preferably made of a number of narrow pieces glued together, as such a construction will prevent warping and the consequent possible binding of the table. The front of the frame may be equipped with knobs or flush handles for pulling.

A table 18 or 20 inches wide will be found ample, as it will in most instances be more than four feet long. In that case, no change whatever in the partition studding will be needed, as the table part will be entirely housed within the buffet, while the "ribs" or cleats may be so arranged as to miss the studding. All that is required will be to cut a hole thru the plaster for the passage of each cleat.

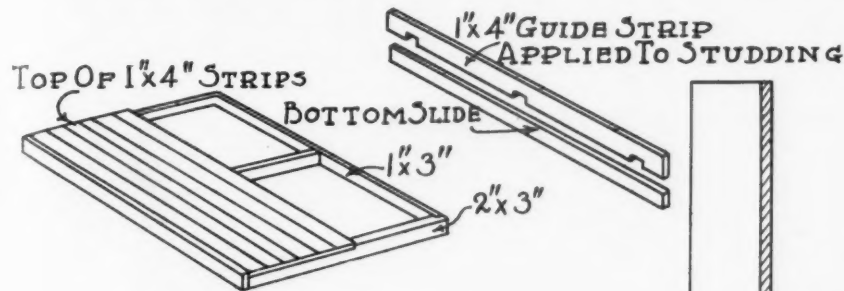
To guide the rear portion of the frame, a guide strip is placed against one or the other side of the partition back of the cupboard. This strip corresponds in its position to the front horizontal stile over



Elevation of a Built-In Kitchen Cabinet with a Pull-Out Table.

the table, but should be made at least half an inch wider at the bottom, allowing notches to be cut into the lower edge for each rib or cleat which serve to guide the rear of the frame both on top and sideways. A corresponding strip, but which need have no notches, must of course also be provided to form a bottom slide for the frame.

The completed table, minus the rear side, is shoved



into place and the latter then nailed on, forming an effective stop which prevents the table from ever being accidentally pulled out too far.

Pull-Out Table Has Many Advantages

A table is thus had which combines all advantages. It is always on hand when needed, yet out of the way in an instant, and out of the way so completely that not an inch projects into the room. There are no legs in the way to bother in sweeping and cleaning. It is strong, and will stand up under a load without any danger of collapsing, as is the case with a hinged table. And the cost of installation does not amount to much more than the price of a well-made four-legged table.



Great Demand for Weather Strips Predicted

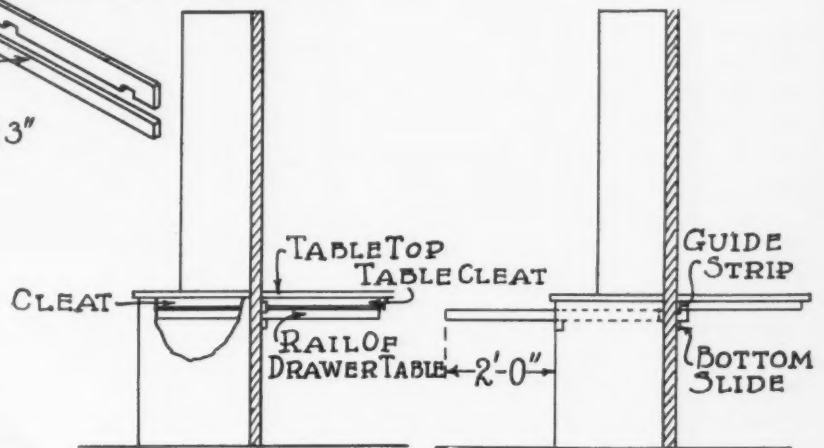
WHILE it may seem too early to begin to think about combatting the cold next winter, it undoubtedly has been noticed that the coal dealers are urging the people to stock up, so as to prevent a shortage of fuel. However, it is just as important, and more so, to keep the cold out of a building as it is to warm and frosty air after it gets in. Contractors can take their cue from the coal dealers and begin to advocate that the window and door openings in the homes and other buildings of their customers be made tight with weather strips.

There is a good healthy profit in the sale and putting in of weather strips. For the contractor it means profitable work; for the dealer it means profitable sales. The constantly increasing use of weather strips and the advance that has been made in their designing, combine to make the demand greater each season.

However, this year there is an added argument in favor of making buildings as weather tight as possible. The advance announcement of the fuel dealers warn

the consumer that there undoubtedly will be a scarcity of coal next winter, unless the mines are worked somewhere near capacity during the warmer months. Coal now is not cheap, by any means, and it is safe to assume that next winter's prices will be higher. Consequently, the question of economy of fuel will be a great aid to the sale of window strips.

There is a great variety now being manufactured



Details of the Construction of Built-In Kitchen Cabinet with Pull-Out Table.

in this country. The manufacturer of each design, of course, claims that his is superior to the others. There will be no attempt made here to say which is the best for the dealer to handle or the contractor to put into the buildings of his clients. But it is a fact that installing weather strips is profitable both for the material dealer and for the builder. Tight window and door openings also are profitable to the building owner, and for that reason there is a strong argument to be used in getting this class of work.

Comfort and convenience are the two prime essentials in a home, and are what the contractor tries to give his customers. There is little comfort to be found in a cold house, and no matter how well the windows and doors are framed and hung, there is always a chance that the settling of a new building will open a crack that will let in a draft.

Here is where the weather strip is valuable. They are so designed that a slight crack between the sash and frame is securely closed. Now is a good time to become familiar with the various types of weather strips, as there will be a strong demand for this material before snow flies.



A Bad Neighbor

One day an inspector of a New York tenement-house found four families living in one room, chalk lines drawn in such manner as to mark out a quarter for each family. "How do you get along here?" inquired the inspector. "Very well," was the reply. "Only the man in the farthest corner keeps boarders."

Design for a Half Monitor Poultry House

By F. C. Lewis, Rural Architect

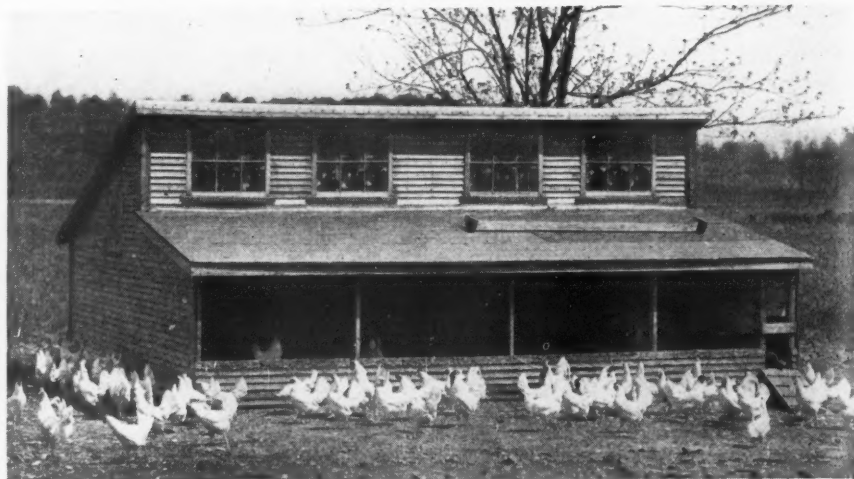
WHILE good birds and intelligent care are essential to successful poultry raising, a suitable house is of equal importance. To be effective, a poultry house should provide comfort of the birds at all seasons of the year; it should be convenient for the attendants; it should be neat in appearance and strongly built, but economical in cost.

The laying houses should be placed on sloping, porous land, preferably on a southern slope, with the house facing south or southeast. They will then receive the direct rays of the sun for the greatest part of the day.

The perspective and plans shown herewith are for a half monitor poultry house which has become very popular with many farm poultry raisers. It is tightly inclosed on the ends and back side and has an open south front. Muslin or burlap roller curtains may be provided to inclose the open front if too much cold wind blows thru. These materials will break the air currents, offer sufficient ventilation and aid in keeping the temperature inside the house normal during the coldest portion of the year.

Will House 100 Birds

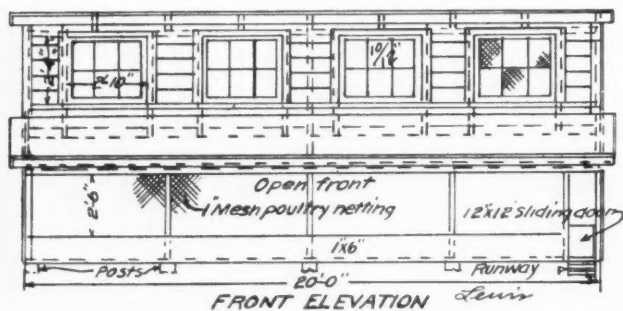
This house has a floor space of 20 by 20 feet, which furnishes sufficient room for 100 birds. If a



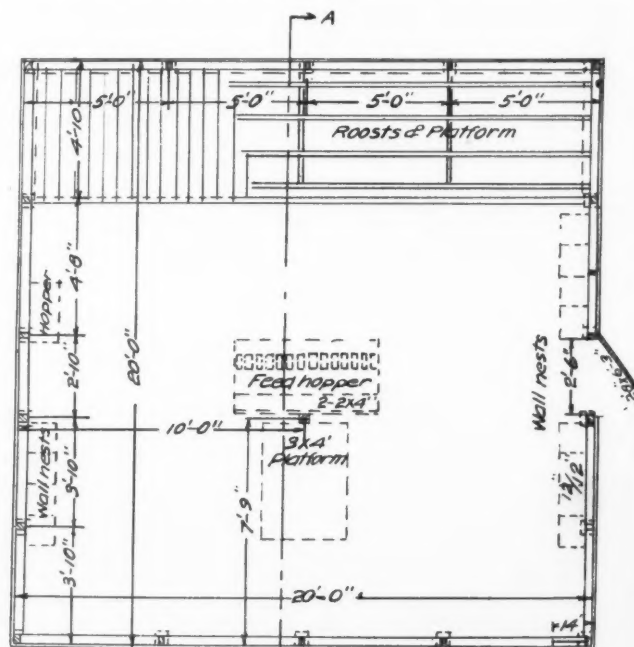
Poultry House, Purdue Farm, Purdue University, Lafayette, Ind. This Building Will House 100 Birds and Keep Them Healthy and Productive. Ventilation and Sunlight Are Secured by the Design of the Building and Placing of Windows.

larger house is desired another section may be added to the length.

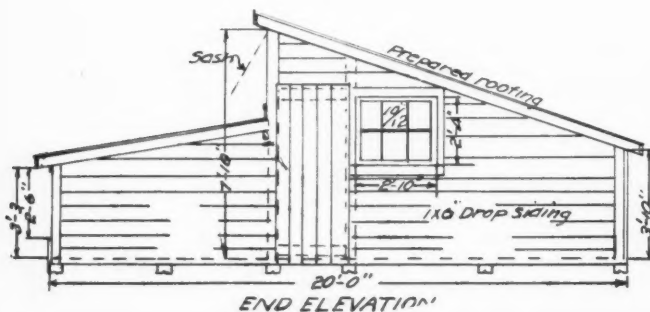
The super-structure is supported on piles or posts



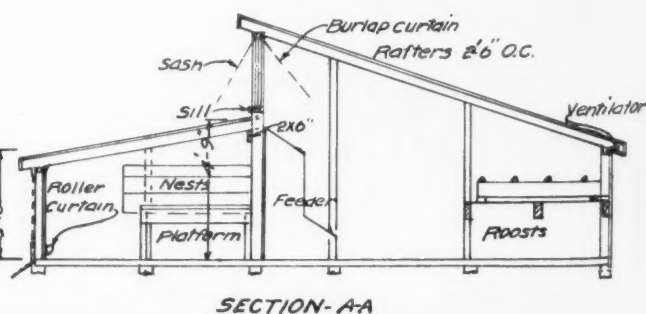
Front Elevation of Half Monitor Poultry House.



Floor Plan of Half Monitor Poultry House.



Elevation and Section of Half Monitor Poultry House.



driven into the ground about five feet apart. On top of these piles are fastened 2x4-inch sills. The stud-ings are 2x4's, spaced about 30 inches on centers. The studding at the back are four feet long and in front three feet, six inches long.

The Structural Details

The rafters are of 2x6-inch material, the back ones 14 feet and the front ones eight feet, six inches long, spaced 30 inches on centers. Shiplap tightly laid is used for sheathing and covered with prepared roofing.

Drop siding is used for the back and end walls. The front is covered on the outside with poultry netting and on the inside with a curtain.

Four windows placed in the upper south wall at the proper height for the sun's rays to strike the floor near the back of the house during part of the day furnish sufficient light and heat to keep the house warm unless the temperature outside gets much below zero.

Inside the house at the back are roosts with a dropping platform beneath to aid in keeping the floor of the house clean and sanitary. The roosts may be removed from the platform for cleaning.

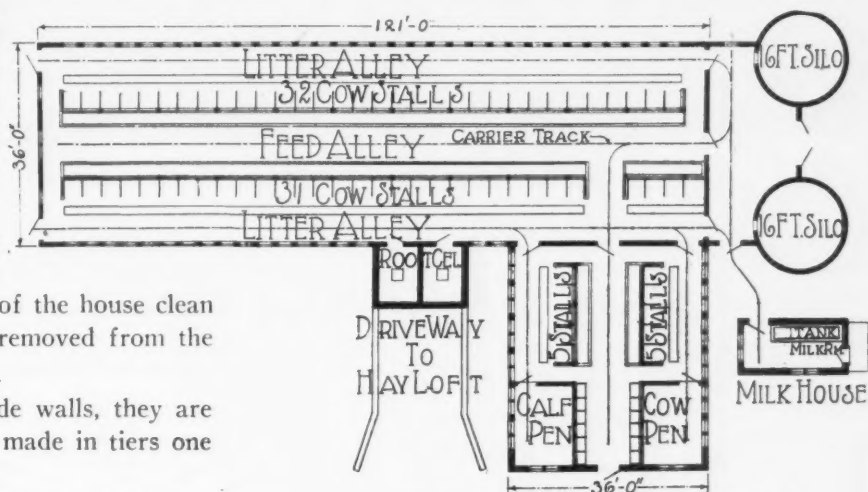
The nests are fastened to the side walls, they are 12 by 12 inches inside and may be made in tiers one row above another.

An earth floor is used and if covered with straw may be kept sanitary and will prove very satisfactory for a house of this type.

Design for a Large Modern Dairy Barn

THE dairy farmer of today has a barn for his herd that in efficiency rivals a large modern manufacturing plant. Farm building architects have designed many features in the building and the manufacturers of farm building equipment have produced labor-saving devices, which, together, give the dairyman a plant for producing milk and butter that makes his business a profitable one.

The main barn is 36 by 121 and the L 36 by 41 feet. The placing of the stalls, the location of the feed and litter alleys, with the overhead carrier system, the two large brick silos, so constructed that their walls adjoin those of the barn, and the milk house all combine to make this a most efficient barn.



FLOOR PLAN OF DAIRY BARN

Floor Plan of Large Modern Dairy Barn and the Layout of Auxiliary Buildings.

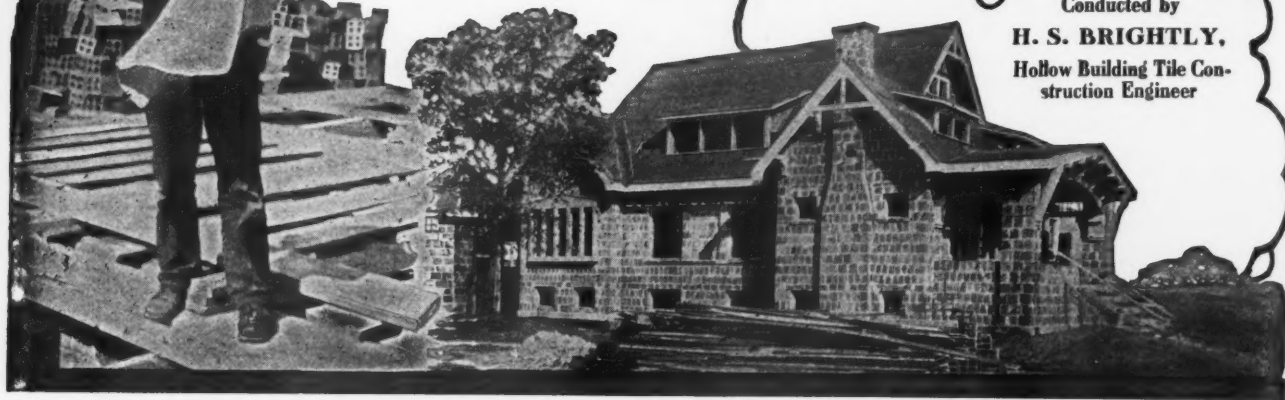


PERSPECTIVE OF A LARGE MODERN DAIRY BARN. This design is the highest type of building to house a herd of seventy-five cows and their products, as well as their winter's supply of feed. The main barn is 36 by 121 feet, and the L is 36 by 41 feet. Two 16-foot brick silos, which, of course, can be of any other silo material and go well with the frame barn, the milk house and root cellar underneath the driveway to the hay loft are features that make this design excellent.

STRUCTURAL TILE WORK

for Houses, Farm Buildings, Stores, Garages, etc.

Conducted by
H. S. BRIGHTLY,
Hollow Building Tile Construction Engineer



If you will send us a plan or sketch of the building you are thinking of erecting, Mr. Brightly will tell you about the sizes, shapes and quantities of hollow building tile that will best serve your requirements.—EDITOR.

Hollow Building Tile Construction

CONTRACTORS SHOULD STUDY THE PLANS OF EACH TILE JOB AND TAKE ADVANTAGE OF EVERY FACILITY AFFORDED BY MANUFACTURERS IN ORDER TO SAVE TIME AND LABOR ON THE JOB

By H. S. Brightly

IN connection with hollow tile wall construction the most satisfactory results and the greatest economy in labor will be obtained if a little careful consideration is given to details connected with the bonding of corners and angles and the proper spacing out of wall area between openings and the fitting of tile around door and window frames, etc., previous to the order or purchase of tile. A great many of both city trained bricklayers and country masons are not familiar with these details, and in order to avoid all loss of time in cutting and fitting the regular size tile, the contractor or owner should see that the required sizes and shapes are ordered and their use explained to the foreman or mason in charge at the building. This is a very simple matter, as most manufacturers of exterior wall tile make all of the shapes required and excepting where such shapes as jamb tile, sill and lintel tile, or special closer tile are required it is only

a matter of cutting the regular shapes to several different lengths. Closer and one-half closer tile for finishing of jambs at openings and tile for bonding of corners should always be provided for and the other shapes referred to can usually be obtained when

ordered along with the straight wall tile, at little if any advance in the square foot price. A number of manufacturers also furnish literature giving printed instructions and showing cuts illustrating the best manner in which to use their products.

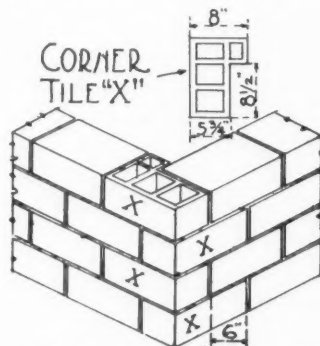


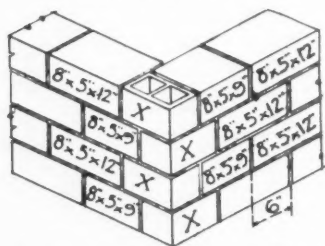
Fig. 2. Corner Bonding Detail for 8-Inch Walls of 8 by 5 by 12-Inch Hollow Tile.

It is, of course, possible to build almost any ordinary building by using only the one regular wall tile shape, but this does not give the best results, and contractors should take advantage of the facilities offered by manufacturers, as this will result in more satisfied clients, more profit to themselves and an encouragement to the manufacturer to render the contractor even greater facilities and service.

Simple Details of Corner Bonding

In this article it is my intention to show a number of simple details of corner bonding for use with the ordinary types of hollow building tile and in a later article will show details for the building of tile around window and other openings.

Starting with one of the simplest forms of construction, that of the 8 by 5 by 12-inch building tile laid on the side, or 8-inch bed, the usual manner of



"X" = 8" x 5" x 5" CORNER TILE

Fig. 1. Corner Bonding Detail for 8-Inch Walls of 8 by 5 by 12-Inch Hollow Tile.

“Build now-
use

Last of Three



STANLEY

BALL BEARING
BUTTS
TO A DOOR



Conditions are ready to “Build Now” and build for permanence.

Let your every job make an impression on the community to act as an incentive for building.

Attention to detail is essential to a 100% building of any size. Doors—and the butts they are hung on are the most used and least noticed equipment in any building. Think how little they cost in proportion to the rest of the material and how much trouble they can give if they do not work smoothly.

Hang all your doors on “Three Butts” to insure against warping, sticking or binding. Notice the neat appearance of the three butt hung door. “Build Now” and use “3 Stanley Ball Bearing Butts to a door.”

We have booklet “3 Butts to a Door” We will be glad to mail you a copy. Ask for Booklet 3A.

THE STANLEY WORKS

NEW BRITAIN, CONN., U. S. A.

New York:
100 Lafayette Street

Chicago:
73 East Lake Street

“Use Ball Bearing Butts for Permanence”

bonding corners is shown by Fig. 1. The required quantity of this same section of tile, cut in 5 and 9-inch lengths, is ordered along with the 12-inch lengths which permits the bonding of corners and at the same time maintains a bond thruout the length of the wall. This, however, does not provide for the closing of cells in tile around window openings and closer and half-closer tile are also required if the walls are to be left without a stucco finish. When finished with stucco the ends can be closed by filling the cells as described in a previous article, which method will be more fully described in a later article on setting methods.

Another method of bonding corners in walls of 8 by 5 by 12-inch tile is by using as special corner tile, as shown by Fig. 2. These corner tiles are not made by all manufacturers at the present time, but appear to be the most satisfactory corner tile that can be devised for this detail, and I believe will eventually be universally adopted, particularly as this one shape will serve for 8-inch wall of several different types of tile and it both accomplishes the bonding of corners and starts bonding of wall by breaking the joints midway on the tile.

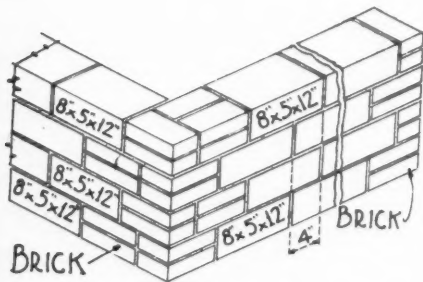


Fig. 3. Detail for Bonding Corners and Finishing Around Openings of 8-Inch Hollow Tile Walls with Common Brick.

In the agricultural districts of Iowa, where a great quantity of tile construction is used and in other sections of the country where the 8 by 5 by 12-inch building tile is extensively used for barns, hog houses, poultry houses and other farm buildings, etc., the corners are frequently bonded with common brick, brick also being used around the doors and windows for closers, as shown in Fig. 3. This, tho practical in every way, is a make-shift, entirely satisfactory for farm buildings, but not to be particularly recommended for residences, where it is desired to retain the insulation feature of the hollow-tile walls thruout. But it is sometimes used in this latter class of buildings when it is desired to have brick quoining for trimming around openings and at corners, to relieve an otherwise plain stucco wall. For this purpose a similar method of corner bonding is used, the brick, however, usually extends only part way thru the wall, being backed up with hollow tile so as to retain the insulation feature. Details for the brick trimming of tile and stucco wall will be given in a later article.

For Garages, Poultry Houses, Etc.

For garages, poultry houses and other small buildings the 8 by 5 by 12-inch building tile is very frequently laid on the side to build a 5-inch wall with

courses 8 inches in height, and when laid in this manner, probably the best corner detail is obtained by having the same tile cut in 8-inch length for corners, so as to bond these corners as shown by Fig. 4.

Another shape of tile that is very extensively manufactured and used in the Middle West for similar light weight walls is the 4 by 8 by 12-inch. When used for 4-inch walls the corners are bonded as shown by Fig. 5. When laid on the side for 8-inch walls, the corner details are similar to those shown by Figs. 1 and 2, the corner tile in both cases being cut in 4-inch lengths to suit the 4-inch height of courses. This shape is not so economical for 8-inch wall as the 8 by 5 by 12-inch tile and can only be recommended for such walls where the 4-inch course is preferred or this size tile not obtainable locally.

Still another form of tile frequently used for small buildings, garages, etc., is the 4 by 5 by 12-inch tile which may be laid on either the 4 or 5-inch face, according to thickness of wall and height of course desired. When laid on the 5-inch bed the best corner is obtained by using the 8 by 5-inch tile cut in 4-inch lengths and similarly when laid on 4-inch bed, by using 4 by 8-inch tile cut in 5-inch lengths, as shown by Fig. 6, or common brick may be used as shown in Fig. 7.

Corner details for walls 12 inches and more in thickness built of 4 by 5 by 12-inch and 8 by 5 by 12-inch tile in combination will be given in a later article.

Where the tile wall is to be left exposed to the weather and a finished face tile used, frequently a rounded corner is desired, particularly in connection with agricultural buildings — barns, garages, and implement sheds — the bull-nosed corner shape, shown by Fig. 8 may be substituted for the squared

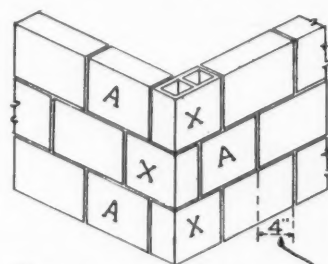


Fig. 4. Corner Bonding Detail for 5-Inch Walls of 8 by 5 by 12-Inch Hollow Tile.

Fig. 5. Corner Bonding Detail for 4-Inch Walls of 4 by 8 by 12-Inch Hollow Tile.

corner tile shown by Figs. 1, 4, 5 and 6; as such corners act as a buffer to wagon hubs and are not likely to be damaged by chipping due to careless driving of vehicles around the buildings. Rounded corners for this reason are particularly recommended for farm buildings and for garages that are built in open areas. These bull-nose corner shapes are only made and stocked by a few

Why we emphasize "popular price" in this roofing label

BECAUSE heretofore quality alone has been the standard by which Johns-Manville Roofings could be judged in relation to ordinary roofings.

Price or first cost has been the one factor on which cheaper roofings could rely and undoubtedly thousands of buyers have denied themselves the splendid durability of a Johns-Manville Asbestos Roofing because of its apparent expensiveness.

For years Johns-Manville has been working to produce an Asbestos roll roofing that would provide the weatherproof, fire retardent qualities that Asbestos alone can give, at a price that would meet the widest popular demand. The result is

Asbestone

Approved by Underwriters' Laboratories

A Johns-Manville roofing of Asbestos rock fibre, waterproofed with natural asphalts. Being all mineral, it cannot rot or disintegrate and therefore does not need painting or costly refinishing.

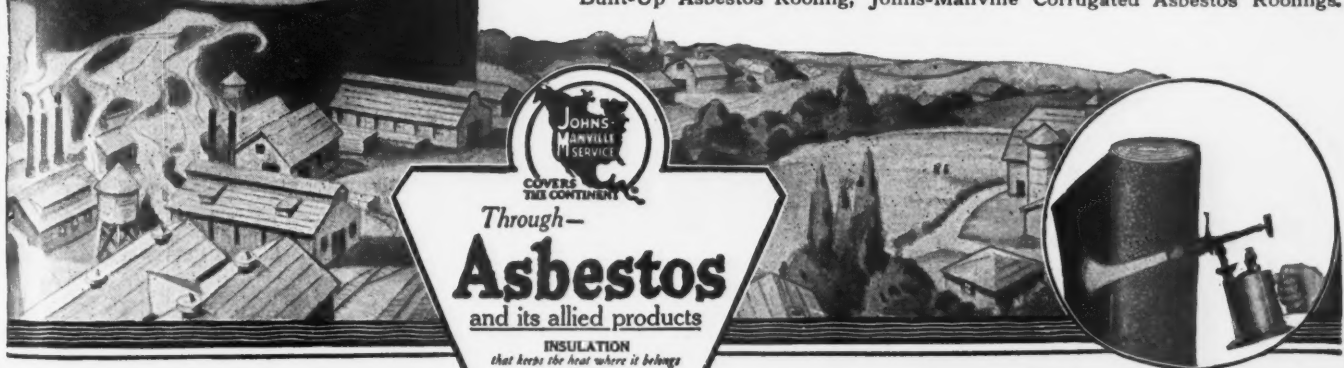
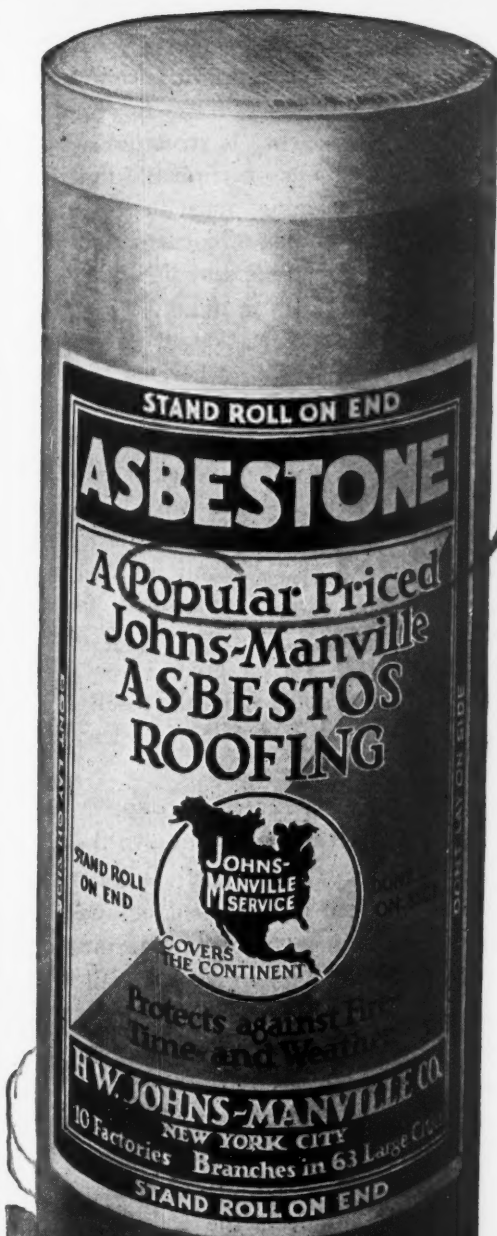
It opens up new prospects for the roofing dealer.

Through a studied and organized sales plan, you can now handle Asbestone Roofing and of course you realize the possibilities.

Here is an opportunity to sell this longer life, fire repellent roofing at a price within the range of your common roofing competition. We will gladly send you all the particulars if you will write.

H. W. JOHNS-MANVILLE CO. New York City 10 Factories—Branches in 63 Large Cities

Other Johns-Manville Roofings: Johns-Manville Standard and Colorblende Asbestos Shingles, Johns-Manville Asbestos Ready Roofing, Johns-Manville Built-Up Asbestos Roofing, Johns-Manville Corrugated Asbestos Roofings.



Through—
Asbestos
and its allied products

INSULATION
that keeps the heat where it belongs
CEMENTS
that make boiler walls leak-proof
ROOFINGS
that cut down fire risks
PACKINGS
that save power waste
LININGS
that make drains safe
FIRE
PREVENTION
PRODUCTS

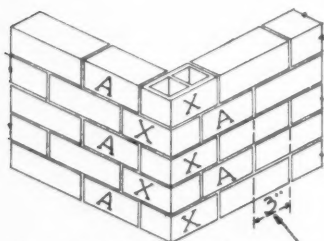
JOHNS—MANVILLE

Serves in Conservation

manufacturers at the present time, but would doubtless be made by all manufacturers if the demand for same warranted the expense of changing the dies.

Tile for Exterior Walls

Next to the 8 by 5 by 12-inch tile, the standard 8 by 12 by 12-inch load bearing tile is probably the tile most frequently used for exterior walls. This tile may be set either on the side or on the end, some manufacturers advocating that it always be set on end on account of the greater strength of the tile when in that position. When this form of tile is set on end and the wall is to be stuccoed no bonding tile are required unless there is some objection to bonding between courses thruout the length of the wall by 4-inch breaking of joints, which is accomplished by the reversing of the 8 by 12 by 12-inch tile in alternate courses at corners. Similarly closer tile are not required as the closers and half closers are obtained by cutting off one-third or two-thirds of the regular tile. When it is desired to break joints midway over the tile in course below, however, a 2 by 8 by 12-inch filler of corner tile is used and the most common detail for bonding corners with this type of tile is shown by Fig. 9. The 2 by 8 by 12-inch tile may be used either as a filler next to the regular tile



THIS BREAKING OF JOINTS THROUGHOUT MAY BE MADE 6" BY HAVING THE TILE MARKED "A" CUT TO 9" LENGTHS
"X" = 8x5x4" CORNER TILE

Fig. 6. Corner Bonding Detail for 5-Inch Walls of 4 by 5 by 12-Inch Hollow Tile Laid on the 5-Inch Bed. When Laid on the 4-Inch Face for 4-Inch Walls, the Corner Tile Would Be of 4 by 8-Inch Sections Cut to 4-Inch Length (4 by 8 by 4-Inch), Giving a 4-Inch Breaking of Joint, and Where 6-Inch Is Required the Tile Marked "A" Should Be Cut to 10-Inch Length.

shown by Fig. 2 cut in 12-inch instead of 5-inch lengths as any manufacturer producing this shape could furnish it in 12-inch lengths if ordered.

For 10-inch thick walls of 10 by 12 by 12-inch tile, a 4 by 10 by 12-inch corner tile is used in a manner similar to that shown by Fig. 9 for 8-inch walls and for 12-inch walls of 12 by 12 by 12-inch tile the corner tile is 6 by 12 by 12-inch, which is alternated at corners in a similar manner.

For Walls to be Covered with Stucco

In the bonding of corners it is always necessary to give consideration to the bond that it is desired to

maintain thruout the length of the wall. Where the wall is to be covered with stucco, appearance need not be considered and any bond that breaks the joint between courses from 3 to 6 inches is structurally satisfactory, but the type of closer or jamb tile that is to be used around window openings must be given consideration along with the bonding of corners, and hence it is advisable to use the 6-inch bond by breaking joints

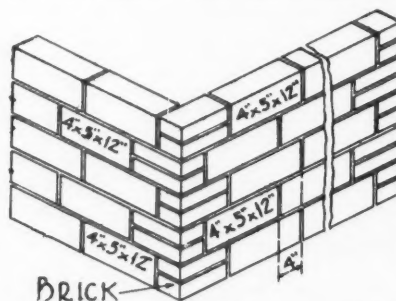


Fig. 7. Detail for Bonding Corners and Finishing Around Openings of 4-Inch Hollow Tile Walls with Common Brick.

midway in the length of the tile wherever possible. Where the courses are less than 8 inches in height the 4-inch bond, obtained by breaking the joint alternately one-third distance from end of file, gives a very pleasing appearance, as may be noted from the small garage illustrating one of my previous articles (see Fig. H on page 52 of the May number).

A number of the manufacturers who specialize in load-bearing tile, manufacture in addition to the regular structural tile, a face tile which is similar, except that it has either a smooth or texture face and is intended for use without stucco or other exterior finish, and with this tile it is customary to work out all details based on the bonding of wall by breaking joint midway on the tile. This type of tile is rapidly gaining in popularity for numerous classes of buildings, especially small rural residences, bungalows and small flat buildings and for the enclosing walls of moderate sized commercial buildings, such as factories, public garages and storage buildings, and it is the writer's opinion that the greatest developments in the next year may be expected in this form of tile, which by omitting the cost of exterior stucco frequently enables a permanent hollow tile wall to be erected at less cost than properly sheathed and clap-boarded, shingled or stuccoed wall of wood frame construction. The demand for low cost, vermin proof wall in the many types of structure is also fostering the more extensive use of this kind of tile.

Bonding Division or Cross Walls

Before closing this article on the bonding of corners, which refers particularly to the bonding of angles, I wish to refer to the bonding of division or cross walls into the main wall.

It is, of course, somewhat difficult to obtain a masonry bond with any wall less than 8 inches in thickness and it is generally more satisfactory in the case of thinner tile walls to tie cross walls to the exterior walls by using sheet metal brick bond; or, with end construction tile walls, "U" shaped clips of No. 16



You KNOW
Wolff Plumb-
ing—is it worth
while to con-
sider any other?

L. WOLFF MANUFACTUR-
ING CO. Mfrs. of Plumbing Goods Exclusively

General Offices - 255 N. Hoyne Ave.

Show Rooms - 111 N. Dearborn St.

CHICAGO

gauge band iron are slipped down over the shells of the abutting tile and embedded in the mortar joint. Where it is desired to bond an interior wall to a wall of 8 by 5 by 12-inch tile, it is customary to build from every second, third or fourth course of the interior wall, about 4 inches into the exterior wall by cutting off one cell of the tile in exterior wall at this point to permit the building in of these bonding tile, or a pair of 4 by 5 by 12-inch tile may be substituted for

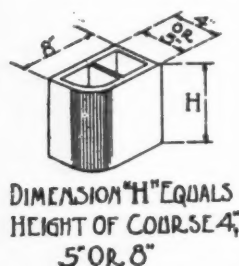


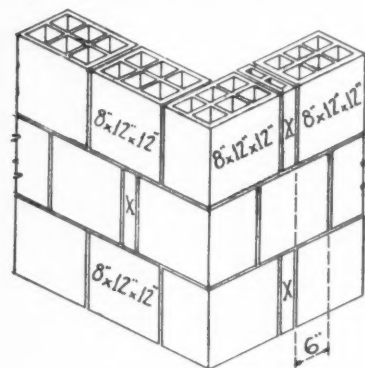
Fig. 8. Bull Nose Corner Tile for Round Corners.

the 8 by 5 by 12-inch tile at points where this bonding is required, the inner tile being cut to fill out the space on each side of bonding tile. A similar method of cutting off one of the cells or using a tile of lesser thickness with cut tile for filling out at bonding points, is used with end construction tile walls. Where the courses are 8 or 12 inches in height the bond tile should occur in each alternate course.

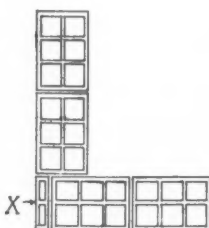
The next article will be devoted chiefly to the building and bonding of walls around door and window openings, and should be read and considered, along with this article, by everyone interested in these details, as the two are related parts of the same subject.

An association of hollow tile manufacturers is contemplating a series of tests and doubtless the subject of comparative strength of hollow tile walls, both as to load-bearing capacity and resistance to lateral pressure when bonded in the several different ways now in use thruout the country will be given consideration. We are assured that the results of such an investigation and the data derived therefrom will be welcomed by all interested in building construction, as very little authoritative data on this subject is readily available at the present time. We all know that hollow tile walls are amply strong for the service required of them, and, in fact, under usual conditions have an extremely large factor of safety.

The question is, therefore, one of developing the simplest, best and most economical forms of construc-



"X" = 2" x 8" x 12" CORNER TILE



ALTERNATE METHOD OF LAYING BY SETTING CORNER TILE IN CORNER POSITION

Fig. 9. Corner Bonding Detail for 8-Inch Walls of 8 by 12 by 12-Inch Hollow Tile.

tion for the various types of structures and the overcoming of local prejudice favoring obsolete standards and methods. With this in view, the writer will welcome suggestions and communications from any contractors or masons who are readers of the *AMERICAN BUILDER*, and will also endeavor to answer all questions that may be asked on this and other subjects relating to tile construction that are treated on in these articles.



Siding a Barn

To the Editor:

La Fargeville, N. Y.

There was a time when barns were covered with rough lumber, and it did not matter so much how the work was done. But now we use better lumber and we should do good work.

The sides do not present much difficulty, and yet we sometimes see places where the boards do not reach from sill to plate, and instead of breaking joints, as should be done, several boards are made to meet on one girt. Too often these are not cut with the proper bevel, or square across, so that poor joints result, and if this is done on the sides, we may expect, and generally find, even poorer work on the ends.

The old way was to put on one length of boards up to the beam, and let the gable boards drop down over these. There were some objections to this way, but it was better than setting the second length of boards on top of the first, even tho a water table was put in.

We have all seen barns where the beam was rotted out and needed to be replaced.

The proper way to side the gable end is to break joints and have as few of these on the beam as one can. To do this you will want to tack two boards together so that they will reach from the sill up over several nailing places, then stand these up, and mark on them the beams and girts, and cut the boards as wanted. Break joints every time. Keep one board cut ahead all the time.

Someone may say this will waste lumber, but it will not waste much, for the short pieces will work at the top, and there are always boards which should be cut off some, anyway, to get rid of defects, and the work will be enough better to pay.

JOHN UPTON.



Real Versatility

"Versatile?" said the genius friend, musingly. "Yes, on the whole, I think I should call Jones versatile. He's the sort of man who, if he were a piece of furniture, would be one of those bookcases that turn into a folding bed at night."—*New York Globe*.



Playing Safe

"Tell me something."

"Shoot."

"Do you say a girl is light complected or light complexioned?"

"Either way you're liable to wind up in a snarl. Say she's a pronounced blond."—*Louisville Courier-Journal*.



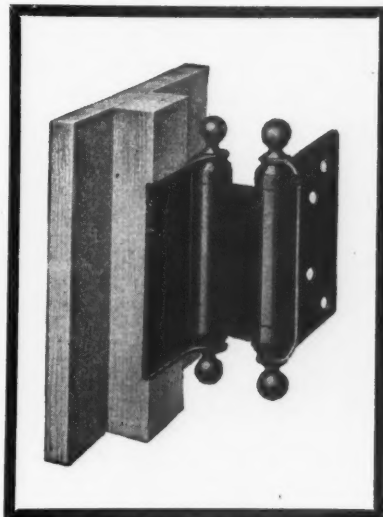
"WHY didn't I think of that before?" That is a question that frequently comes when a simple method of doing an everyday thing is brought to our attention. There are many of these methods described and illustrated in the Correspondence Department of the *AMERICAN BUILDER* during the year.

THE LAWSON "NU"-SPRING JAMB HINGE

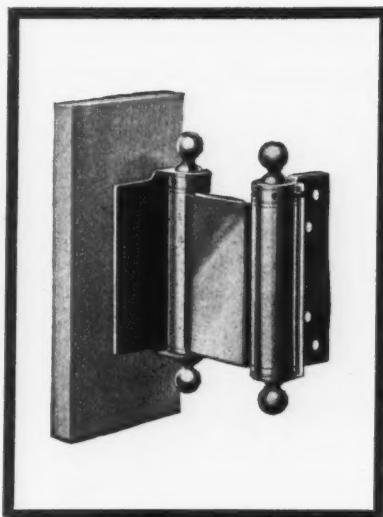
Hang Your Door the Lawson Way

Every door hung with a Lawson "Nu" Spring Jamb Hinge saves you one dollar and a half.

No hanging strip is required and the hinge is more easily and quickly applied. Strong in construction and fastened directly to the door this hinge gives more solid support than if a hanging strip were used.



THE OLD WAY



THE LAWSON WAY

For years we have specialized in the manufacture of quality hinges for all purposes. Although they contain many patented features the price is the same as for other spring hinges.

Our large plant is equipped to make prompt deliveries on large orders of all our products.

Write us for complete information

LAWSON MANUFACTURING CO.

228-230 West Superior St., CHICAGO, ILLINOIS

Branch Office: 85 Walker Street, New York

The Rural Building Renaissance

HISTORY WILL REFER TO THIS AS A GENERATION OF FARM BUILDERS

By James A. King

CONTRACTORS are finding to their advantage that there has opened up in this country, with a flourish, a great Renaissance of farm building. More farm building is being done this year than in any former year of American agricultural history. Governmental, industrial and municipal building may be slow in getting back into its stride, but American farmers are not holding back. In fact, they are going ahead with a push and an abandon which bids fair to produce pandemonium among the dealers in, and the manufacturers of, the building materials adapted to their needs.

A shortage of professional unskilled labor has but little effect on their operations. If a contractor can get hold of one carpenter and one mason he will go ahead, doing the unskilled work himself. Out here in the middle west they are going ahead with their building so fast that dealers are having a hard time furnishing the lumber, cement and building tile they order of him.

These dealers tell me they never saw the like of it in their lives. They do not have to worry about selling their goods. What they have to worry about, and the worry which is putting gray hairs into their heads, wrinkles into their faces and aches in their backs, is getting the goods with which to fill the orders of their farmer customers—orders which are coming to them without solicitation on their part.

Farmers Erecting Better Buildings

I have talked the situation over with a number of dealers. In answer to my question: "What kind of buildings are they putting up?" I get the same invariable answer, "Better than they ever built before." They tell me they can hardly sell a bill of materials for a home that is not to be modern. One dealer said, "I am furnishing materials and equipment for a bungalow which will cost not less than \$6,000 for these materials and equipment alone, not considering the labor of erection. It is modern in every respect. And

this goes onto a farm near a little town of less than a thousand inhabitants."

Asked about farm buildings other than houses, they replied in the same strain—modern, complete, durable, not haphazard affairs. No cheap shells of shacks. They want only what will shelter their stock and crops better, what will enable them to do more work in a day and to live better while they are living. Something they will never have to build over again because it has grown old or degenerated and decayed. Here is a new situation. And the question is, "What is the why of it?" A careful consideration of all of the factors leads naturally to the following logical conclusions and comments:

For years, the farmers of the great middle west have wanted more buildings than they have had, and also wanted to replace with new and better ones those they already had. The new high level of prices for their products, which has been in existence for nearly four years, has given them the money with which to do at least some of the building they have wanted to do for this long time. And they are going about it to satisfy their needs and wants in this respect. Judging by a comparison of action, they are less disturbed by any anticipation of a change of price levels than any other industry which is in need of building expansion.

And while they are about it, they are erecting better and more efficient buildings than those they had before. For the first time, they are doing their building on a basis of annual cost and efficiency rather than on the old basis of first cost only.

Annual Cost, Rather Than First Cost

There was a time in the history of American agriculture when it was perfectly legitimate to decide a building project on the single basis of first cost only. In fact, it was poor business to do otherwise. Land was cheap, crops were cheap, livestock was cheap; to build permanent and efficient buildings of any material



Buildings Like This Have No Place on the Modern Farm. They Are Too Expensive When One Considers What They Allow the Elements to Do to Crops, and Livestock.

BEAVER BOARD

FOR BETTER WALLS & CEILINGS

You can't expect Beaver Board results unless this trademark is on the back of the board you buy.



Beaver Board Satisfaction

"The prettiest dining room I ever saw" is a true expression of the Beaver Board result. It is an indication of the satisfaction that comes from the use of this sturdy building material.

Once used in the dining room, your customers will want it throughout the house. Such a demonstration will show you as well as them that Beaver Board permanency is one of the greatest qualities of this knotless, crackless, manufactured lumber.

In a dining room with beam ceiling and wainscoting, Beaver Board is particularly suitable. Its rich color effects harmonize beautifully with the woodwork paneling of such a room. It produces a most satisfying effect.

Beaver Board will save you building

time. Because it will never crack or fall, because it lends itself to such a variety of uses, are other very pertinent reasons why you should use this material in your work. Our Department of Design and Decoration is prepared to give you practical assistance in the matter of panel arrangement, as well as choice of color. This service also includes correct estimating of the material required. It is a free service. We will be glad to send you interesting literature and give you further information regarding this service.

THE BEAVER BOARD COMPANIES

63 Beaver Road Buffalo, N. Y.

Branches in Boston, New York, Baltimore, Cleveland, Detroit, Chicago, Minneapolis, Kansas City, San Francisco, Ottawa, Can., and London, Eng.

Manufacturers also of Beaver Greenboard & Beaver Blackboard.

Distributors in principal cities, dealers everywhere.



A Fine Farm Building Group, the Kind the Modern Business Farmer Demands.

whatever was comparatively costly. Money was dear, and the average farmer had but little of it at that. By the time a pioneer farmer had made the first payment on his land, and had set aside enough for operating capital—with which to buy seed, machinery, live stock and labor—he had but very little left with which to erect buildings. And his farm was heavily mortgaged to boot, and mortgages of those days were all in favor of the creditor and nothing in favor of the debtor. In order to keep his business plant going at all, it was necessary for him to keep his building investment at the minimum; the absolute, irreducible minimum at that. He could not afford to house cheap products, produced on cheap land with cheap labor, in expensive buildings even tho they would have given better protection to their contents.

Good Building to House Valuable Products

But we have graduated from that first-cost period, to the annual-cost period, in farm buildings. Land is high, grain is high, stock is high, in fact, all our products are high. We can't afford to house high priced products, produced from high-priced land by high-priced labor, in those cheap, inefficient shelters which our fathers used in lieu of farm buildings. We can't afford to house them in anything but the most effectively protective buildings it is possible for us to erect. We must have protection for our animals from the cold of winter and the heat of summer, as well as from winds, snow and rain.

While we must have this service, still we must have it with economy in cost. But that economy is now being measured by the standard of annual cost, that new standard for measuring the cost of farm buildings. The greatest economy is going to be had by using the most durable materials which will give the service which is our first demand of the building. Materials which will stand the ravages of time and the elements.

The Value of Durability

The value and importance of this durability is well proven by the experience of Iowa farmers. A survey which was made a few years ago by Professor Hoffman, of the Agricultural Engineering Section of the

Extension Department of the Iowa State College shows that during the fifteen-year period just prior to America's entrance into the war, the farmers of the state spent all the way from fifty-one to seventy-eight million dollars each year simply for the materials with which to repair or replace the equipment of buildings they already had. That is, this amount was spent annually for the bare materials with which to repair buildings already in use and to repair those worn out and so torn down, or those destroyed by fire or wind storm.

These amounts represent from fifty-five to sixty-five per cent of the annual building material budget of the farms of the state. They represent all the way from thirteen to twenty per cent of the annual average crop production of the state for that same period. Or they represent all the way from \$235.00 to \$359.00 each year for each farm of the state.

The real building era of American agriculture has just begun. This is not because our fathers did not want to build better, or did not know how to do it. It was simply because they did not have the price with which to pay for better buildings. They were faced with the necessity of getting a maximum amount of shelter with a minimum expenditure of money. This forced them to erect mere shells of buildings; buildings which gave some shelter, tho not very much—but still, far better than none at all.



A CONSIDERATION of the building permits in any community reveals that the present activity is not confined to any one class of building, but home building leads. Contractors are erecting public buildings, factories and business buildings, while the number of private and public garages that are being constructed is extraordinary.



RECENTLY an AMERICAN BUILDER subscriber said he found an idea in the Correspondence Department that saved him "\$2 the very next day." That is not much, but that same tip will continue to save that builder \$2 every time he has the same work to do. Reading the Correspondence Department thoroly is worth while.

"my men handle five times more material in a day!" says Contractor Jordan.

TELEPHONE MAIN 705

A. IRVING JORDAN
BUILDER
1141-9 CONWAY BUILDING
CHICAGO, ILL. 170
CHICAGO 2, ILL.

June 28th, 1919.

The Geo. G. Tucker Co.,
1633 Monadnock Block,
Chicago, Illinois

Attention Mr. Geo. G. Tucker.

Gentlemen:

With reference to the #9 Knickerbocker Swing Saw recently purchased from you for our Sears, Roebuck warehouse job at Ogden & Rockwell Sts., wish to advise that I am very well pleased with the operation of this saw. We have been handling from 12 x 16 timbers down to 6 x 14 timbers with this outfit. Originally we were cutting these by hand. After the installation of Saw I found that my men could handle approximately five times as much material in a day

This naturally represents a considerable saving to me and I am certainly please to recommend the Knickerbocker Woodworkers as a thoroughly reliable and satisfactory proposition.

Yours very truly,

A. Irving Jordan

Manufactured By
The Knickerbocker Co.
525 Liberty Street
Jackson, - - Michigan



Showing our No.9 Combination Swing Cut Off and Ripping Machine with 36 inch Saws.
We build a size for every need

CORRESPONDENCE



Questions Answered and Ideas Exchanged.

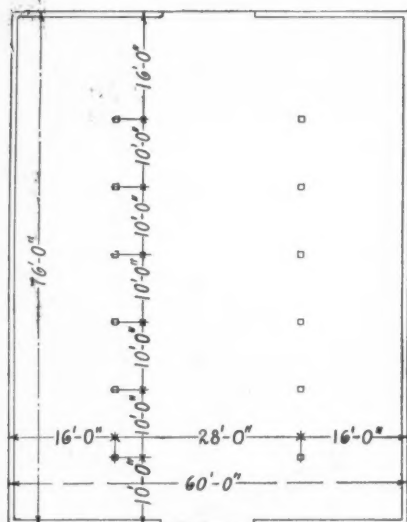
Our Readers are Requested and Urged to Make Free Use of These Columns for the Discussion of all Questions of Interest to Carpenters and Builders

A Barn Remodeling Problem

To the Editor:

Perry, Okla.

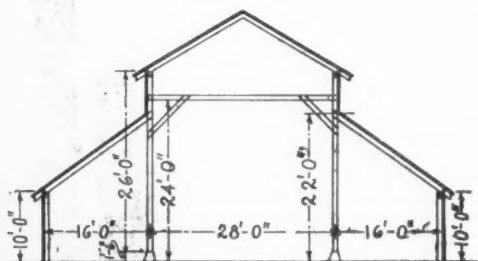
I have had a building proposition put up to me and I would like your opinion on my plan. A barn for hay and stock, plan and section of which are shown in the accompanying drawings, has 4 by 8 inch ties put across from post to post, two feet below the plate line. A sling was used for putting in the hay and two of the ties have been broken. The owner has asked me to support the walls and roof and remove the cross ties. The posts are 8 by 8 inches, 26 feet long, and are set up about 18 inches on concrete footings inside the barn. The posts are spaced 10 feet on centers in



BARN FLOOR PLAN



PROPOSED BRIDGE TRUSS



CROSS SECTION

Plan, Truss and Cross-Section of Mr. Klostermeyer's Barn Remodeling Problems.

line. My idea is to put a bridge truss in line with the plate and hold this by means of stays from the rafters, with a good rod, say $\frac{3}{4}$ inch, thru each post, and crown the truss sufficiently, so that when the shoring and ties are removed the weight will bring it back to the correct line.

If, in your opinion, this will answer, or if you can suggest a better method, please advise.

I have read the AMERICAN BUILDER since the first issue and could not afford to be without it. I have never seen a question just like this handled, so am put-

ting it up to you and your readers. JAMES KLOSTERMYER.



Volunteers to Help the Brick Masons

To the Editor:

Benton Harbor, Mich.

The writer likes the correspondence pages of the AMERICAN BUILDER fine. I see that bricklaying (that's the work I love) is not listed as a business that can be taught in correspondence schools. It takes real muscle and head work, together with years of practice, to get it. The writer has over 30 years' experience to his credit, and still enjoys taking lessons.

If any of your readers are interested in this subject, and have questions to ask regarding such work, send them in, and I may learn something by trying to answer them, because we all have different experiences that should interest each other.

O. M. SOUTHWORTH.



Klima Offers Suggestions for Vestibule to Make Barns Weather-Proof

To the Editor:

Owatonna, Minn.

In looking over the hundreds of plans that are received in our engineering department, we cannot help but notice that a large majority of them are arranged with big double doors in the center of the building and these double doors are usually hung on roller hangers.

You know that this kind of a door will not keep out the wind, and the farmers have a great deal of trouble with the cold around these doors.

Would it not be a good idea to introduce a new feature on barns, and that is to build a vestibule out about four or six feet on the end of the barn and provide this with rolling doors on the outside and then have storm doors that are hinged on the inside? These storm doors would open out into the vestibule and in this way make a protection against the cold.

This could be done on both ends of the barn where the hay is taken in the center, but where the hay is taken in on one end of the building, the vestibule might have to be planned inside of the stock room.

This can be done, for usually box stalls can be placed at the end of the building and the vestibule can run in part way onto the box stall.

It would also seem to us that on every plan there should be indicated the end of the building which has the hay doors.

In planning ventilating systems it is possible to put the ventilating flues up on one end of the building if the hay door is on the other end, and this it would seem should be clearly indicated on the plans.



A Medusa Waterproofed Block House—Damp-proof and Stain-proof

5,000,000 Concrete Blocks Waterproofed with Medusa



We have used Medusa Waterproofing for more than six years in more than five million cement blocks and the fact that we are still using it surely shows our confidence and satisfaction.

CALUMET CONCRETE
CONSTRUCTION CO.
EBER C. CHASE, Manager

Medusa Waterproofing is the original *integral* waterproofing for all cement, stucco and concrete work. It is put in with the sand and cement when the mix is made and so gets into the innermost pores of the finished product making it watertight through and through.

The concrete block or the stucco made with Medusa Waterproofing will not stain or discolor. Driving rain or scorching heat will never affect it.

Medusa Waterproofing makes a harder, stronger, *better* concrete. It comes in ready-to-use powder or paste form and can be used with any white or gray portland cement.

Play safe. Use Medusa Waterproofing yourself and if you use concrete blocks insist that they be Medusa Waterproofed. Then your concrete work will always give permanent satisfaction.

Our booklet "How to Make Concrete Waterproof" tells the story in plain language. Write for free copy—*today*.

The Sandusky Cement Company
Department G CLEVELAND, OHIO

Also Manufacturers of Medusa Gray and Medusa White Portland Cement—Plain and Waterproofed

MEDUSA WATERPROOFING

Here are two suggestions, both of them practical, and the vestibule idea is surely the coming idea for the barns in the northwest.

It is simply impossible to put 8-foot rolling doors on a barn and expect to keep out the cold. Already a great many farmers have built storm doors which swing on the inside, but they are very inconvenient and the farmers do not like them.

Here is a chance for you to make a hit with a new idea. We wish we had our office in connection with yours, as there are hundreds of ideas that come up that we would be very glad to turn over to you.

KING VENTILATING COMPANY.

By J. KLIMA, Gen. Mgr.



Demand for Small, Economical Houses

To the Editor:

Richmond, Mo.

I like the AMERICAN BUILDER fine and have been a subscriber for a long time. I get a great deal of useful information from it. I have no fault to find so far as I am concerned personally, but I often have a customer that wants a five-room modern cottage just as cheap as it can be built and of course have some style. It is a hard proposition to get as much house as they want for the price they want to pay. Would suggest some thought along that line.

J. E. HILL.



How to Build Weather-Proof Porch Sash

To the Editor:

Saskatoon, Sask., Can.

In reply to your correspondent in the May issue who asks for suggestions of how to have weather-proof sash on a glazed-in veranda, perhaps my rough sketch would help him some.

If he rabbeted the bottom of his sash to fit over a piece of iron runner, similar to that used in sliding cupboard doors, and had his sill on an angle, with a piece of iron rabbeted

into them, he would have his sash weight to help raise his sash and when they were up push them forward to bring down over the runner piece. I do not know if I have made myself plain, but I have tried to do so. Also have a dove-tail check rail on top of sash which would fit into sill snug when the sash were down.

I would like to see a few more plans of smaller workmen's bungalows, four to five rooms, also some verandas.

R. W. PRIMMERY.



How Can Inswinging Casement Windows Be Made Weather-Tight

To the Editor:

New Orleans, La.

The writer is trying to find a suitable pattern for moulding to be placed at the bottom and on the outside of casement windows which open in. Along the Gulf Coast we have some real rain storms, and when a high wind accompanies them, as is generally the case, any casement window that is loose enough to open permits a variable amount of water to go under the window and into the room. We want to get hold of the best arrangement possible for preventing that occurrence. We think that either you or some of your subscribers will be able to furnish the information wanted. If suitable designs are submitted we could make them available, and perform a service to a great many lumber retailers and their customers who have casement windows of that kind.

SOUTHERN PINE ASSOCIATION.



Going Into the Building Business

To the Editor:

Kalamazoo, Mich.

I wish to inform you that I am going into the building business and expect to build several houses for myself and others. Any suggestions or advice will be given thoughtful consideration. I would like to receive literature from all your advertisers.

FOREST H. BOWMAN.



Likes Plans for Two-family Homes

To the Editor:

Cleveland, Ohio.

I am a builder of residences and would like to see the AMERICAN BUILDER publish more plans of two-family homes, up and down, and side by side.

ROBERT F. KUNKEL.



Here's a Letter for the Contractors With Woodworking Shops

To the Editor:

Centreville, Md.

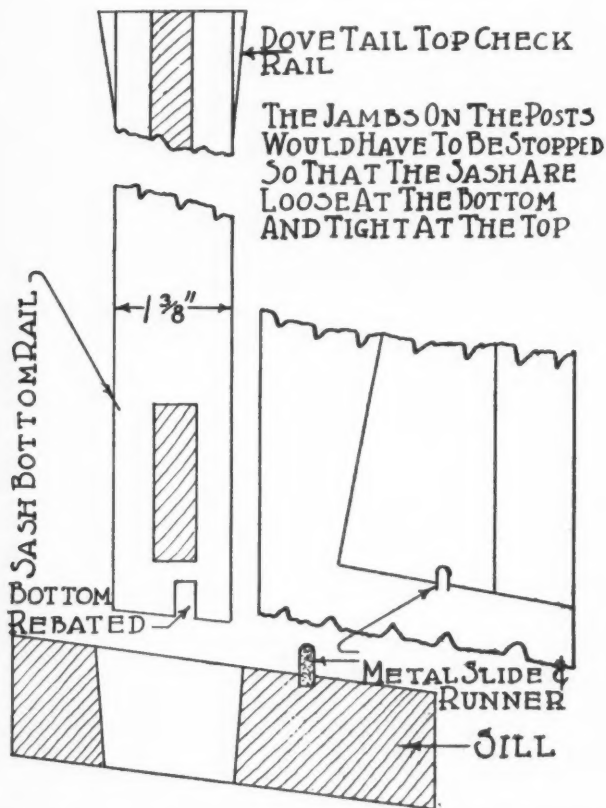
We have a proposition to bring to your attention which is a vital one from our viewpoint in that it concerns our future development.

Our business in the past has been confined to house building and repairing. In the spring, summer and fall we always have more than we can handle, but in the three months of winter we have a problem keeping our men busy and then only in a limited way.

Our shop is equipped with a Crescent Universal woodworker, mortising machine and small lathe, and it has been our desire to secure some kind of light manufacturing in wood whereby our equipment could be kept running during the winter months and also keep our full force busy.

We have several times advertised in city papers and secured small results, but we are hoping to get into something that will be the nucleus of something that will be a big thing for us in the future.

(Continued to page 108.)

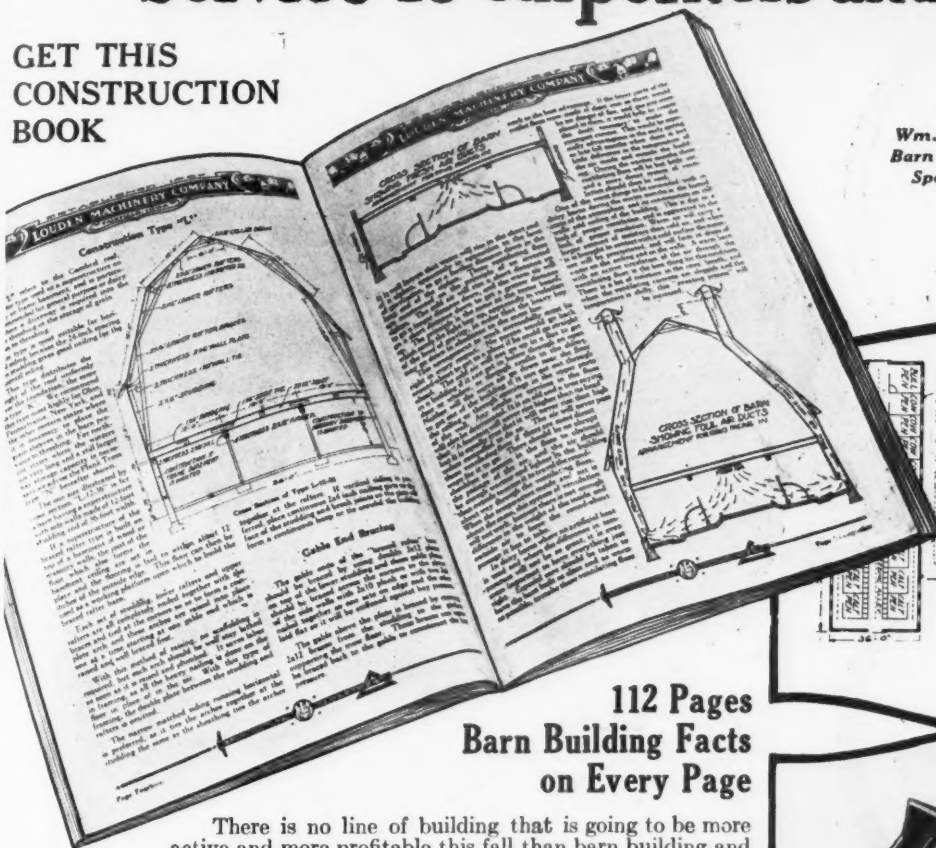


Details of Weather-Proof Sash, as Built by R. W. Primmetry.

LOUDEN

Service To Carpenters and Builders

GET THIS
CONSTRUCTION
BOOK



Wm. Louden
Barn Building
Specialist



Floor Plan of Barn Designed for
Hon. Thos. Taggart, French Lick, Ind.

112 Pages Barn Building Facts on Every Page

There is no line of building that is going to be more active and more profitable this fall than barn building and we want to be of real service to you in getting the business. Barn building has been postponed for several years—crops are bigger than ever and now farmers everywhere have reached the point where new barns are absolutely necessary.

• You want this business, and we want to help you get it. We are especially well equipped to render carpenters and builders the kind of service which is a real practical help, because our organization is made up of men with whom barn building has been a life work—and remember, we make no charge for any of this service.

Here Are The Ways We Can Assist You

If you have a barn building proposition in hand and will write us briefly what you have in mind, our expert architects will prepare blue prints drawn to meet your requirements, with such suggestions for improvements as their experience in modern barn designing may dictate.

We want to send you, postpaid without charge, the Loudon Barn Plan book which will be a very valuable help to you in preparing suggestions for your customers. It is not a catalog—112 pages devoted entirely to barn

building, showing hundreds of illustrations, including 76 barns and other farm buildings with floor plans, full description and estimated cost. Chapters on drainage, ventilation, concrete and hollow tile work; many construction details of foundation, floor, roof, doors, windows, ventilation, etc.

We will be pleased to send you this book on receipt of one or more names of prospective builders in your locality, and help you bring them to a decision in your favor by sending them our barn building literature.

Louden Equipment Saves Half the Barn Work

You will be interested also in the Loudon General catalog, showing the full line of Loudon Labor Saving Barn Equipment, including Stalls and Stanchions, Litter and Feed Carriers, Animal Pens, Water Bowls, Hay Unloading Tools, Barn and Garage Door Hangers, Ventilators, Cupolas—"Everything for the Barn."

Fill out and mail us the coupon at once, so that we can co-operate with you without any delay in securing the barn-building business in your neighborhood.

The Loudon Machinery Company

(ESTABLISHED 1867)

5529 Court Street

Branches: St. Paul, Minn.

Albany, N. Y.

FAIRFIELD, IOWA

Chicago, Ill.



The Loudon Machinery Company

5529 Court Street, Fairfield, Iowa

Please send me full information on your Barn Building Service to Carpenters, also books checked below:

- ☐ Loudon Barn Plans
☐ Loudon Catalog

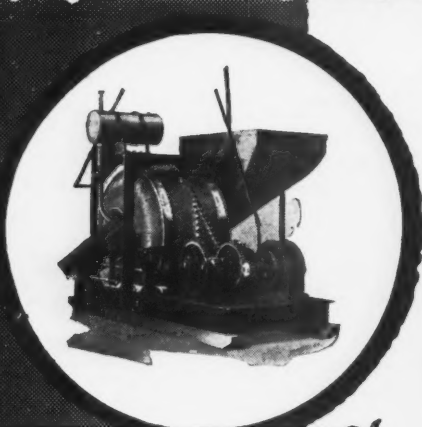
Prospective builders are:

My Name,

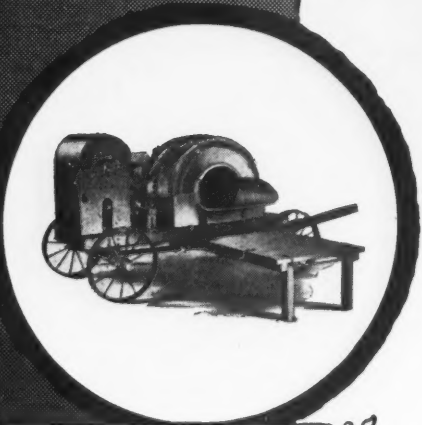
P. O.,

State,

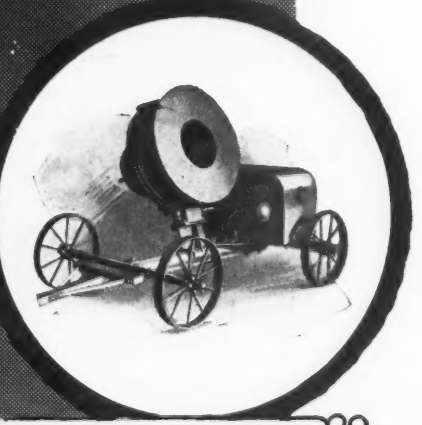
Most Important Announcement



Oshkosh Standard Mixers
10 to 28 cu. ft. mixed material



Oshkosh Low Charging Mixers
4 to 7 cu. ft. mixed material



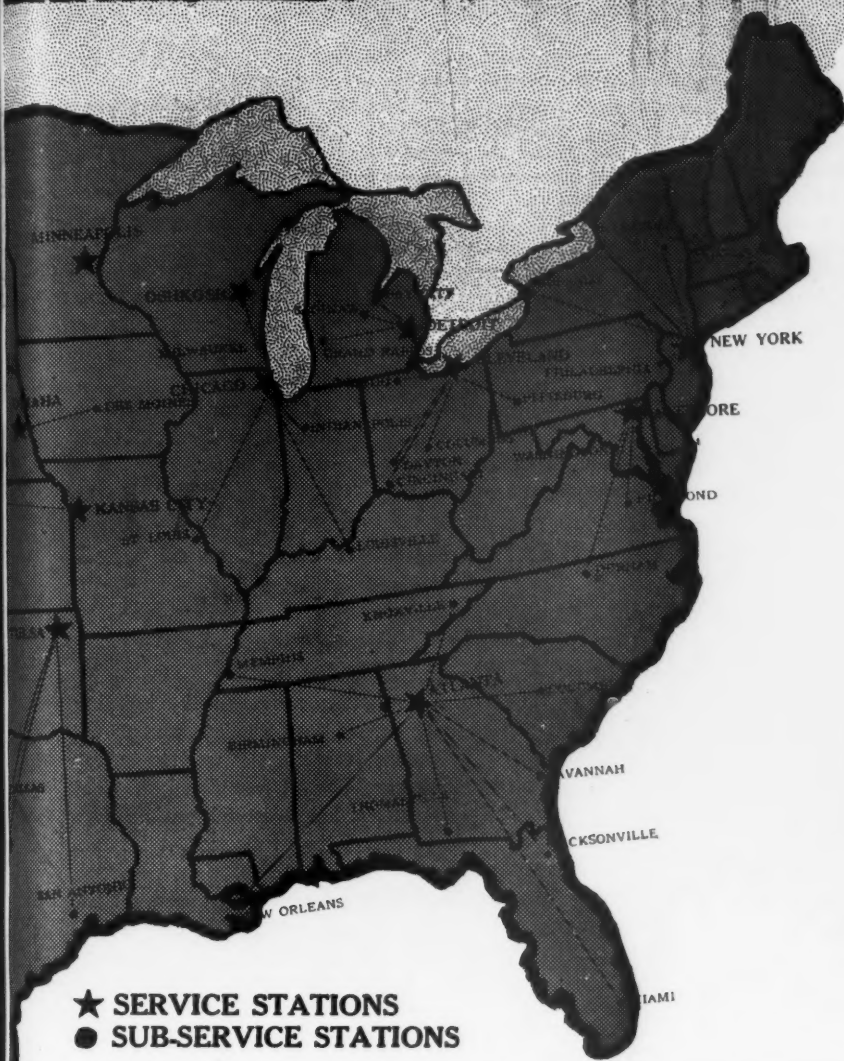
Oshkosh Eveready Mixer
Worm Drive, 4 cu. ft. mixed material



THE Oshkosh Service Plan is now complete! After months of planning, we are at last in a position to give every owner of Oshkosh Equipment the one thing he wants most—**SERVICE when he needs it.**

The map above shows the location of all Oshkosh Service Stations and Sub-Stations. Each Service Station is fully equipped for rendering **complete service**—carries a complete line of parts, maintains a fully equipped machine shop for either repairing or entirely rebuilding Oshkosh Equipment and has a repair **expert**, a man who not only **knows** Oshkosh Equipment, but is an engine expert as

Ever Made to the Contracting Field



well. Each Sub-Station either has a stock of parts or can get them in a few hours, and either maintains an expert repair man or can get one on instant call.

No matter where you are located, you can get service *at once*—over night at the longest. Just call your dealer, tell him what you want and he will be on the job immediately.

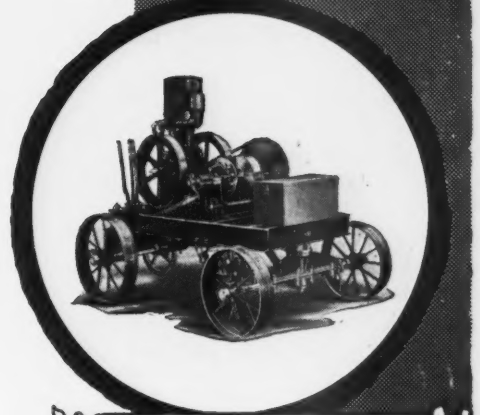
And remember—this service is for you. It applies to all Oshkosh Equipment—new or old.

You need the Oshkosh Catalog—free on request—write

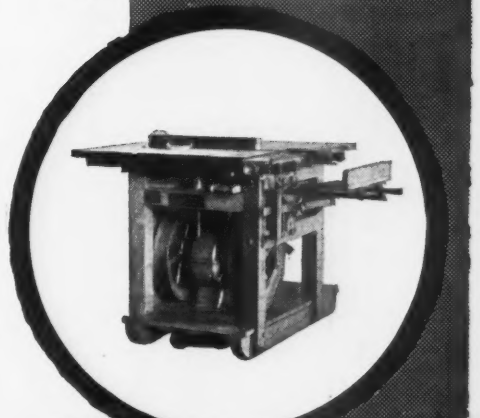
Oshkosh Manufacturing Company
508 Amber St.
Oshkosh, Wis.



Oshkosh Light Highway Paver
7 cu. ft. mixed material



Oshkosh Back Filler
Cuts back-filling costs 75%



Oshkosh Eveready Saw Rig
Eleven operations

Correspondence Department

(Continued from page 104.)

Our town is situated on the water and we have two railroad connections, but we have no manufacturing industries whatever to bring labor to the town. It has been our ambition to be the first to start the ball rolling, but as yet our investigations have not reached the high point.

We trust you can make some suggestions that will be of help to us and if you desire more information in regard to our conditions please advise. C. P. WALTERS & SON.

Answer—The problem presented here is one that has caused many contractors in the same position numerous sleepless nights. There are, however, many who have solved it. The Editor would like to have them tell Mr. Walters how they have succeeded in keeping their men and equipment busy during the dull period. THE EDITOR.

Wants to Build a Portable Sawmill

To the Editor:

Narcisse, Man., Can.

Could you or any of the readers of the AMERICAN BUILDER give me a sketch or information as to how I can erect a portable sawmill with a rolling table? I have a Fordson tractor and I am thinking of cutting lumber during the winter. The speed of my pulley is 950 r.p.m. and I plan to use a 30 or 36-inch saw. I would be very pleased if some of our clever readers would give a diagram and the sizes of pulleys required. I trust you will find room for this in the Correspondence Department.

H. E. CARR.

A Weather-Proof Blind Stop

To the Editor:

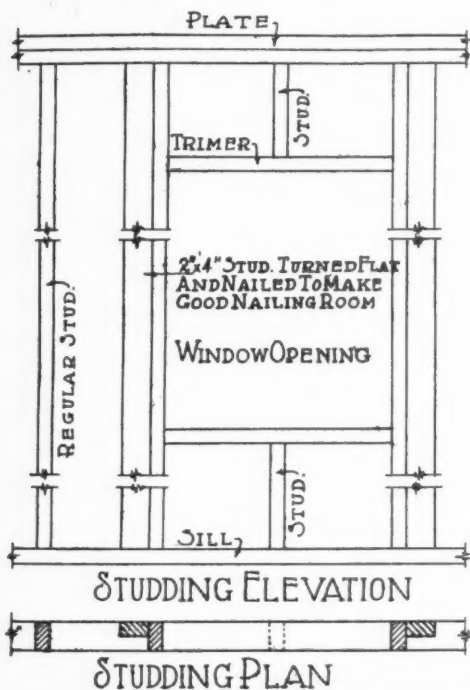
Throckmorton, Texas.

I have just been looking over the AMERICAN BUILDER correspondence department and I thought of a weather-proof blind stop and subcasing that we use in frame houses in the south that might be of some benefit to someone. We use a double stud on each side of window; one next to window must be as other stud, but the one just against it must be turned flat and nailed to it, as in making troughs, so as to give good nailing room for dropsiding and blind stop, which is 1x4x5 inches. In making window frame, use 1x4x5 for a bind stop, letting it run up to near the top of

casing header to keep water from running in over top. Set frame and cut weather boarding to blind stop or sub-casing, then cut outside casing over all, and you have a weather-proof frame.

I would like to have a recipe for making or working over mirrors. Someone please give me recipe thru the AMERICAN BUILDER.

I would like to see some hints on shop work and ma-



Elevation and Studding Plan of Weather-Proof Blind Stop.

chinery. I have a small carpenter and cabinet shop.

This part of Texas is interested in bungalow houses with built-in furniture and some plans would be appreciated very much by carpenters and contractors.

I hope this will help someone as I have been helped by others. E. A. BIRCHITT.

Plaster Cracks in Corners

To the Editor:

Pierpont, S. D.

I have taken your paper for about eight years, and look for it to come each month as much or more than I did when I first became a subscriber.

I have had a little trouble about plaster cracking in the corners of two or three houses that I have built. Here is a drawing of the way I build the corners all well nailed. The blocks are nailed about two feet apart all the way up the corners.

How J. C. Hastings
Frames His Corners.

If you care to print this in your paper I would like some brother carpenter to answer thru the paper, as it might be of help to someone else. J. C. HASTINGS.

Wants Light on the Use of the Steel Square

To the Editor:

Trenton, N. J.

On reading over the AMERICAN BUILDER, I see the possibilities of the steel square.

I would like to be straightened out on the building line and getting my building square with the line, and would also like to know how to get my level for the wall when no other buildings are close to where I want to build.

Concerning the steel square, I understand getting my length for the hip and valley rafters, but I do not understand the cuts for the plumb cut.

The jack rafters also have me puzzled. I can get the side cut, but do not understand the spacing of the jacks along the hip.

I know just enough about roof cutting to do me no good at all.

I would like to be straightened out on the Boston hip.

If this book full of information isn't asking you too much, I would like you to straighten me out on it.

I am very much pleased with the AMERICAN BUILDER, also the *Farm Mechanics* and certainly do enjoy them and do not know what I would do without either one of them now.

C. L. LUKENS.

Wants to Build Concrete Grain Bin

To the Editor:

Venedocia, Ohio.

I would very much appreciate any information you could give me regarding the proper manner of constructing concrete grain bins, of small capacity, say from one to three hundred bushels of wheat, etc., either circular or rectangular in shape, preferably the rectangular, as it would undoubtedly be the easiest and most economical to build, and roof. Now, what I want to know is, how the walls and floors of these bins are constructed so that moisture from the ground, and from the air in wet weather, will not be absorbed thru them in sufficient quantity to cause the grain to spoil, when kept in them for a long time; also how the dampness caused by the grain going thru the sweat is taken care of so it will not heat. I have never seen any grain bins made of concrete, and have been unable to find any-

We'll Help You Make \$5000 a Year

Do You Want This Income

We are ready to establish you in a good profitable business—a business that can be made to pay you from \$5,000 to \$10,000 a year, if you are an enthusiastic hard worker.

All over the U. S. contractors are being established in the Pipeless Furnace business by us.

Every stove heated house in your neighborhood is a prospect—is just waiting to be shown the advantages of Hero Pipeless heating—If YOU show them YOU make the sale—and you get the liberal profit. And you don't need to be an experienced heating man—nor an experienced salesman—our cooperative working plan helps you and shows you the way to get the business.

Our sales plan is so completely worked out and so practically helpful in its operation that you will immediately benefit by it.

HERO PIPELESS FURNACE

NOW THE LEADER

The Hero Pipeless Furnace is the easiest furnace to sell because of its many exclusive advantages. It quickly takes precedence over every other make in any territory where it is introduced.

The Hero Pipeless Furnace is the

result of 30 years furnace experience. The old established reputation of this company stands back of our guarantee of satisfaction.

The Hero Pipeless Furnace is so priced that you easily meet competition and make a good profit.

If you want a good paying business of your own—write today for the Hero Exclusive territory proposition.

And we can supply you with the most economical and most efficient pipe furnaces if you have trade for them.

HERO FURNACE CO.

59 W. Lake St.

CHICAGO

Name.....
Address.....
Please send me details of your
cooperative sales proposition.

thing regarding them in the *AMERICAN BUILDER*, or in any of Mr. Radford's reference works. If you could refer me to any works giving instructions and details on the above I will be very much obliged to you.

T. C. HAIGH.

Finds the American Builder Most Helpful

To the Editor:

Cloverdale, Calif.

You publish a very valuable magazine for builders and I must say that a builder who doesn't get his money's worth many times over out of your publication has no one to blame but himself. Your book of plans is good, but in our locality home builders run strongly to porches—roomy back porches and sleeping porches. While the front porch is a necessity to every home, a good roomy back porch is very useful to the housewife. This is not said to find fault with your plans, but simply as a suggestion that may prove useful to you and others. I shall look forward with interest each month to the coming of the *AMERICAN BUILDER*.

E. E. GIBBINS.

Inlaid Table Top in Natural Colors of Hard Wood

To the Editor:

Hotchkiss, Ark.

I am sending you a picture of an inlaid table top, which is my specialty. The materials used were maple, oak, ash and other hard woods. Each color in the table is obtained by using the various woods in their natural colors.

ELMER E. THOMPSON.



Inlaid Table Top, Made of Hard Woods in Natural Colors.

Plans to Build Water Power Saw Mill

To the Editor:

Bridgeport, N. Y.

I am going to ask you for your opinion in connection with a water mill. What I mean by water mill is a saw mill driven by water power. The timber I intend to saw is from seven inches to one foot in diameter. I ask you to let me know what size mill and saws I need to saw that size timber. What would have to be the size of the driving or water wheel; the size of the pit wheel and the pinion wheel; the size of the shafts and pulley wheels? The mill is supposed to run with double gear. I also want to know the length of the belts or belting.

JAMES MAHONEY.

Questions About Thatched Roof

To the Editor:

Paterson, N. J.

Having been a reader of the *AMERICAN BUILDER* for some time, I take the liberty to ask a few questions in regard

to the thatched roof house. Will some reader who is familiar with this kind of work kindly help me out? How are the shingles shaped at eaves; how are they bent around cornice, and what process is used to make them pliable? Also let me know how the courses are run. I notice they are not in straight lines, but look like a series of crooked lines to me. I hope some of the brother readers will help me to get this thing down. Let me hear from a lot of brothers on this subject. I think it ought to interest a lot of us readers.

I hope to get an early answer thru the correspondence columns.

JOHN VAN OSTENBRIDGE.

Wants Rule for Stair Well Holes

To the Editor:

E. Pittsburgh, Pa.

I would like to know from you or thru your Correspondence Department if there are any set rules, or methods, which govern the size opening, or, rather, what size opening to make a well hole in a stairs to give you proper head room at any point, or any step in the stairs. If there is not, I would like some brother builder to tell me thru these columns how to find the proper size without making a sketch to scale and take measurements from that in any kind of stairs, straight, winding, or landing stairs.

In return will give some of the other brother carpenters what I find a very handy countersink. Take a short machinist's drill, an old one that a machinist has broken, short or discarded, is the most economical. Grind the point the shape of a screw head and this makes a very handy countersink. About 1/2-inch drill will fit any screw. Grind the shank a little square so brace will hold firmly. This is very handy because it sinks both metal and wood nicely, and I find it is a handy sink, especially when a screw head does not fit the lock, hinge or other pieces of hardware that we have to contend with.

I have several other things, I know you won't mind, as I have been saving the questions for some time.

I would like to have a lay-out of a woodworking shop to accommodate at least three benches, one band saw 32 inches, one rip saw, one jointer 12 inches, one small planer and one swing cut off saw. There should be fair working space, but not too large, all on one floor.

I have read your magazine for several years and would not be without it. I read it from cover to cover and I am always waiting for the new issue.

ALBERT Z. HUNTER.

Would Like to See More About Cabinet Work

To the Editor:

Monroe City, Mo.

My occupation is mostly stair building and cabinet work. I think your magazine is almost complete now. The most I am interested in is stair work and cabinet work, and it might help some if you will publish some more of that kind, as there are many of the readers who are interested in this work.

JOHN NINSTADT.

Reasons for Discoloration from Flues

To the Editor:

La Fargeville, N. Y.

In reply to A. M. Candell, who asks about a chimney from which a black substance comes, I would say that it might be caused by one of several things, such as too long pipe or too large flue.

If a chimney flue is too large so that the smoke is cooled and condensed before reaching the top in cold weather, more or less creosote will be formed and this may work thru the walls and cause discoloration, or may even drip thru the pipe.

MURPHY IN-A-DOR BEDS

This is Mr. Lewis home. The five Murphy In-A-Dor Beds are arranged as follows: ¶ Two in the sun parlor. Two in the room of his two boys. One in the room of Mr. and Mrs. Lewis. ¶ Those in the sun room are for outdoor slumber—or for guests. The boys' room in the day-time is free of obstruction and is used for a fine, big play room. ¶ The other chamber, also clear in the day-time, is easy to clean and is used as a sewing room or for any purpose as the occasion requires.

*A Blue-Print
Layout Will
be Sent on
Request*



An Ex-Employe Builds a Home —and Installs Five Murphys!

CHARLES R. LEWIS formerly was an employe of the Murphy Door Bed Company. Then he severed his connections and engaged in another line of business.

But when he built his six-room home, recently, in Webster Grove, Mo., he installed five Murphy In-A-Dor Beds.

Here is a case of a man who came to know

Murphy Beds thoroughly. A man who then became an entirely disinterested person. A man who then chose Murphy Beds of his own volition, to furnish the sleeping accommodations in his handsome home.

Mr. Lewis knew Murphy Beds. Enough! Murphy Beds' best friends are those who know them best.

Can you afford to build without installing Murphy In-A-Dor Beds?

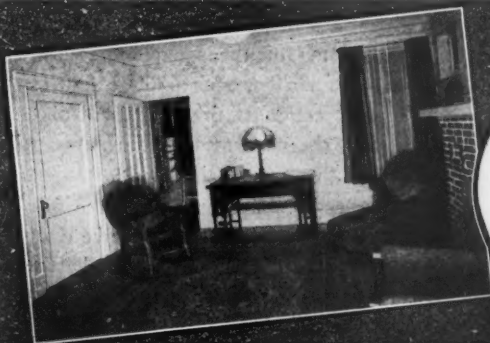
MURPHY DOOR BED COMPANY

6th Floor Winfield Bldg.
New York

659 Leader News Bldg.
Cleveland, O.

22 West Monroe Street, Chicago
Chemical Building, St. Louis

305 City Club Bldg.
Kansas City, Mo.
106 No. Edgefield Ave.
Dallas, Tex.



A cap might help some, but I have seen large flues which did not work well even with caps. This was where they were altogether too large for the work.

Mr. Candell does not say whether this trouble is in cold weather only, nor how many stoves are connected to the chimney or whether a furnace is used, but it would seem that the flue might be too large.

Perhaps the simplest remedy would be to make a slab of concrete the size of the top and set this on small concrete blocks some four inches square, one at each corner. Or he could take the top off and make it smaller by drawing it in on all sides, so as to reduce the opening about one-third.

There is such a thing as getting a flue too small, but it would seem that all the smoke from one or two six-inch stove pipes would go thru an 8x8 flue, and that if a larger flue were used for one stove there might be trouble.

JOHN UPTON.

Seeks Information About Culverts

To the Editor:

Fairmont, N. C.

I have a good many culverts and small bridges to build, and wish all the information on same; the thickness, etc., some of which are 18, 20, 25 and 30 feet long and 20 feet wide.

J. R. JONES, JR.

How to Make a Celluloid Glue

To the Editor:

Columbus, Ohio.

Replying to Harry C. Michael in the July issue. A cement made by dissolving scraps of celluloid in alcohol will glue celluloid to wood. This is used by piano tuners and repair men.

J. D. DEBRA.

Hardware for Automobile Bodies and Tops

To the Editor:

Jersey City, N. J.

Having been a subscriber to your valuable magazine for several years, I take the liberty of asking you for information. I have had several requests for some of my customers to build commercial bodies for Ford automobiles, but not having any exact data on this subject I am a little hazy about starting something that I don't know about. Therefore, I would appreciate it very much if any of the brother carpenters could give me sketches, dimensions, etc., of commercial bodies and where I could purchase the necessary iron work for them. I was told that if I could make a box I could make a body, but, believe me, I want the body to line up and look right before I put my name on it. Hence, I come to the Correspondence Department of the AMERICAN BUILDER.

JOSEPH HAESLOOP.

Answer—The manufacturers of hardware have anticipated the wants of the builders by designing and making the necessary iron work for automobile bodies. The accompanying

illustration shows this hardware and also gives designs for two types of bodies. However, undoubtedly many members of the AMERICAN BUILDER family have had experience in doing work of this kind and will help out their fellows by telling about the bodies they have built thru the Correspondence Department.

THE EDITOR.

How Can a Saw Table Handle Logs?

To the Editor:

East Brewster, Mass.

I would like to know if there is an attachment for a saw table with a single saw 26 inches in diameter that will enable me to handle logs and cut them into lumber. I have this saw in my shop and I have many trees that I could turn into lumber.

CHARLES E. DILLINGHAM.

The Strength of Hollow Clay Tile Walls

To the Editor:

Mounds, Okla.

Would there be sufficient strength in a hollow clay tile wall to hold up a self-supporting garage roof with a 50-foot span?

What is a good mixture for a concrete water-proof cistern, one that will really hold and exclude water?

Is there anything that will take off stain and varnish so that the wood can be stained or painted again?

L. MCKERRACHER.

Mould Under Window Stool

To the Editor:

Prentiss, Miss.

Please advise in your next issue whether or not in putting mould under stool in interior finish, it should finish in line with casing after being returned at end of apron.

A. E. ROBINSON.

Asks Rule for Cutting Rafters

To the Editor:

Jarbalo, Kan.

Please tell me where I can obtain a rule for cutting rafters and a table, giving number of nails required for different kinds of carpenter work, such as dimension, boxing, flooring, shiplap, etc.

WALTER LITTLE, Mgr.

How to Determine Rise and Run of Rafters on a Gothic Roof

To the Editor:

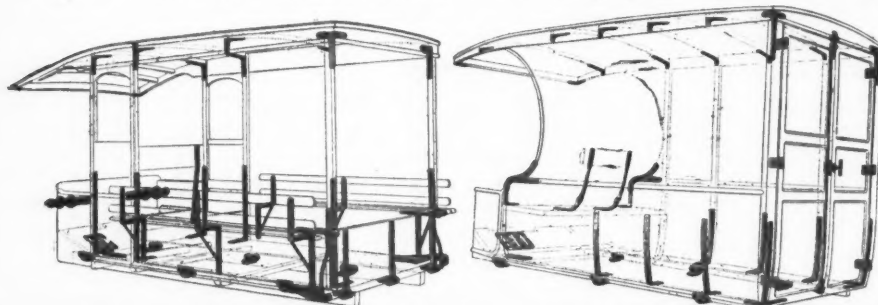
La Fargeville, N. Y.

In reading Mr. Hardbraugh's question in the June issue I am not just sure what he means by length of rafters on a Gothic roof barn, the distance from plate to peak, or the length of the curve.

The first, of course, we can get from the rise and run. As for the latter, the length of the curve, it would be one-fourth of a circle on each side, or a semi-circle in all, if the rise and run were equal. But the radius used is generally more than the one-half the width of the barn, so this rule will not give us the extra figures.

But for the square feet in the roof, one can get approximate figures, as the projection at the eaves will about make up the amount that the curve will lack at the top.

So I think one may take $3\frac{1}{7}$ times the radius as the distance from eaves to eaves, and multiply this by the length, perhaps adding on the projection at the ends.



Two Designs for Commercial Automobile Bodies, Showing the Hardware Used.

"Built Just Before the War"

***This Well Planned Six Room Home
of Beautiful Brick
Cost Less Than Three Thousand Dollars***

This attractive six room home of Brick won first Prize in a country wide small residence competition, conducted by the "American Builder," just before the war.

The competition requirements called for photographs and floor plans of houses which had actually been built, costing \$3,000.00 or less was open to ALL CLASSES of building materials.

Award was made on architectural appearance, interior arrangement and economy of construction.

Hundreds of photographs and floor plans were submitted from all parts of the country, but brick scored the signal victory. It won First Prize.

Send for Free Folder of Floor Plans

We would like to send you, without cost or obligation, an illustrated descriptive folder of this prize-winning home

This folder contains floor plans, interior views and an itemized account of the pre-war cost. It is so complete that any contractor can figure the present cost of this home locally.

**The Permanent Buildings Society
Chamber of Commerce, Chicago, Ill.**



THIS COUPON GETS FREE FOLDER OF FLOOR PLAN

**THE PERMANENT BUILDINGS SOCIETY
Chamber of Commerce, Chicago, Ill.**

Gentlemen:—Please send me Free Folder of Floor Plans of Gate's Prize Brick Bungalow offered in August issue of American Builder. I am also planning to build.....

Give name of lumber and building material dealer

(YOUR NAME)

(YOUR TOWN)

(YOUR STATE)

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

The same rule will give nearly the area of the gables above the plates, that is, call them half-circles, and to get the area of a circle, square the diameter and multiply by .78. This will allow for waste in cutting and matching, if we take twice the radius used as the diameter.

Perhaps someone will give us a geometrical rule for this work which will get the exact figures, but this may answer till we get a better one.

JOHN UPTON.

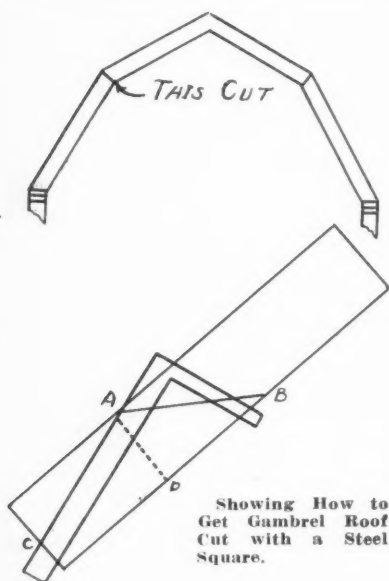


How to Get the Cut at the Break in a Gambrel Roof

To the Editor:

Selma, Ind.

In behalf of the subscriber who wanted to know how to get the cut at the break in the gambrel roof for the different pitches, I offer the following which will work on any combination of pitches and can be laid off directly on the piece to be cut with only three marks with the pencil.



Draw a line from A to B, representing the base line of the pitch for the top rafter, with square laid on this base line at the figures for the lower rafter pitch, draw a line from A to C. Keep body of square on this line and slide down until figures on the tongue, representing the width of lower rafter, come to edge of piece at D. Cut from A to D.

Of course the cut is the same on both top and bottom rafters if they are of the same width. If they are not the same width, the cut A to D would be for the piece used for top rafter, and A to D, using the line A to C as the back of lower rafter, would be the cut for the piece used for the bottom rafter.

I am a new reader of the AMERICAN BUILDER, but like it fine. If this escapes the waste basket I may try another one sometime. If any one has a better rule, would like to learn it.

LON BROOKS.



Houses on Milford Shore Wrecked

(Continued from Page 85.)

is in. Perhaps some of the readers can explain the cause of this feeling.

This house was raised to its old position to have new underpinning put in, but before the contractor could start his work it fell to the ground again.

Photo No. 2 shows a bungalow that fell when the wood piers gave way. The furniture in this house was sailing from room to room, the tide having raised so that the inside of the house was full of water nearly three feet deep. The furniture sailing inside caused most of the the windows to be pushed out.

Photo No. 3 shows summer hotel that lost part of porch. This was claimed to have been done by a large diving raft that rammed against it. Note braces holding upper porch.

Photo No. 4 shows the result of poor underpinning. Fortunately there was no loss of life in any of these wrecks. Where cottages were occupied by families they sought shelter elsewhere as the tide kept rising. It is claimed that if the wind had not changed before high tide there would not have been a cottage left standing on the bench. High tide was due at 5 p. m. and most of this damage was done about 3 p. m. But the wind changed at about 3:45 p. m.

Most of the owners of these cottages are now having concrete piers put under their cottages. It is the writer's belief that if they had done this in the first place they would have saved considerable money. Of course this has been the worst storm witnessed here in 40 years, altho the cottages have only been built in the past 8 or 10 years. And many owners never expected a storm like this. Some claim it will never happen again. But the writer believes, "Never to figure on what may never happen," but to figure on what may happen, and, first of all, watch your foundations.



Taking No Chances

"Come in, son, and let mother wash and dress you," called Mrs. Jones to her besmeared offspring.

"Why, mother, is some one coming?" he asked.

"Yes, Aunt and Uncle Brown are coming to lunch and I want you to look nice."

"Yes," complained the grimy cherub, "but sposin' they shouldn't come!"—Cartoons.



Old Stuff

"Congressman Flubdub says that owing to the pressing demands of his personal business he will retire to private life."

"Yeah. I've heard that before. But what is the main reason for kicking him out?"—Louisville Courier-Journal.



The Bored Soldier

Pretty Girl (to soldier just discharged from hospital)—"And how did you feel when the bullet went thru your arm?"

"Well, I felt distinctly bored, don't you know!"—London Tit-Bits.



Has That Tired Feeling

"I like hot weather, don't you?"

"When it gets too blamed hot to work."—Boston Evening Transcript.



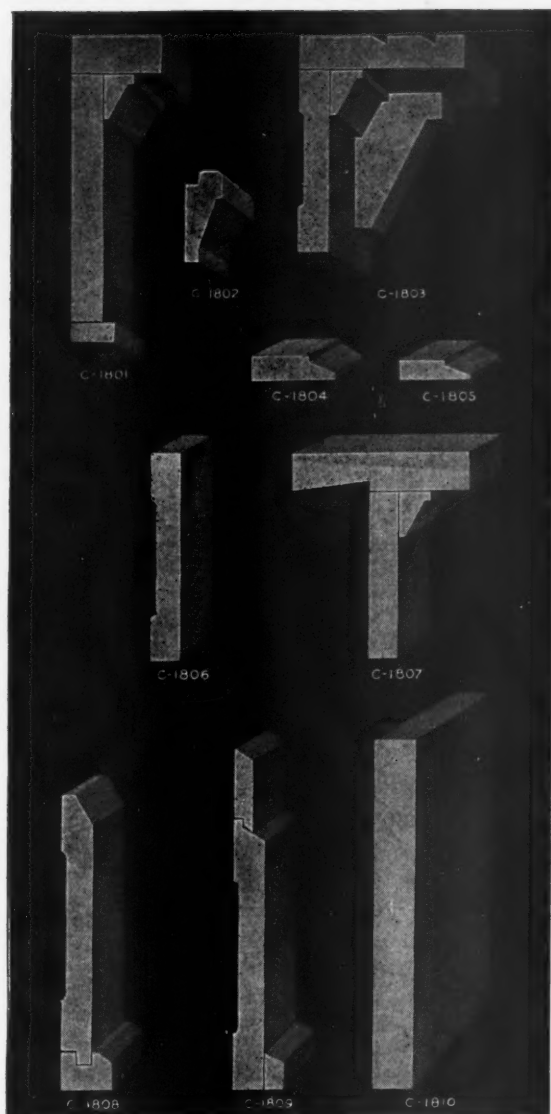
The Embarrassing Typewriter

The junior partner was harried.

"I shall have to get another typist," he lamented. "Miss Take is continually interrupting my dictation to ask how to spell a word."

"Dear, dear!" said the senior partner. "That seems a great waste of time."

"It's not that I mind," responded the other. "But it's so bad for discipline to keep on saying 'I don't know!'"—London Tit-Bits.



Curtis Standard Trim Saves Waste, Time and Labor

All the odds and ends of trim your carpenters leave behind them as they build a house mean shrinkage in your profits.

CURTIS Standard Trim is cut to lengths. Fitting only is required on the job. Thus waste is reduced to a minimum. Furthermore, your carpenters can't make mistakes by using the wrong pieces.

Other construction features about CURTIS Standard Trim save time and labor on the job. For example, all casing and baseboards are "backed out." CURTIS Standard Trim is sanded at the factory by belt and drum sanders, leaving the factory in such a condition that it could be finished at once were it possible to do so. When the trim reaches the job it requires a minimum of preparatory work to put it into condition for the finishers.

These are a few points about just trim. Other items of CURTIS Woodwork are just as carefully and completely manufactured.

Work closely with the Curtis dealer in your town and get the benefits of CURTIS workmanship and methods. He will guarantee you CURTIS Woodwork being right, and he will see that it is delivered on time. Specify CURTIS designs for all jobs and profit by CURTIS construction and Curtis service.

Trim—Design C-1800 Complete window trim cut to lengths for openings.

		Size
C-1801	Cap Mould	1 1/4 x 1 3/4
	Head Casing	3/4 x 4 1/4
	Fillet	3/4 x 1 1/8
	Mould under cap	3/4 x 3/8
C-1802	Picture Mould	3/4 x 1 3/4
C-1803	Plate Shelf	3/4 x 3 1/4
	Mould	3/4 x 3/8
	Apron	3/4 x 3 1/4
	Brackets	1 3/4 x 2 3/4 x 3/4
C-1804	Door Stop	3/4 x 1 3/8
C-1805	Window Stop	3/4 x 1 3/8
C-1806	Casing	3/4 x 4 1/4
C-1807	Stool	1 1/4 x 3 1/2
	Apron	3/4 x 3 1/4
	Apron Mould	3/4 x 3/8
C-1808	Base	3/4 x 5 1/4
	Shoe	3/4 x 1
C-1809	Base	3/4 x 5 1/4
	Mould	3/4 x 1 3/8
	Shoe	3/4 x 3/4
C-1810	Base Blocks	1 1/4 x 4 1/4 x 6 3/4

The above is taken from the Supplement to the Curtis Catalog. This cut-to-lengths feature saves time and material and eliminates waste. Write today for complete information about CURTIS Standard Trim and other items of CURTIS Woodwork.

CURTIS SERVICE BUREAU

2028-3038 South Second Street, Clinton, Iowa

MANUFACTURING AND DISTRIBUTING PLANTS AT

Oklahoma City, Okla. Detroit Lincoln, Neb. Wausau, Wis.
Sioux City, Iowa Minneapolis, Minn. Topeka, Kan.
Clinton, Ohio Dayton, Ohio Chicago, Ill.

EASTERN OFFICES AT PITTSBURGH AND WASHINGTON

The makers of CURTIS Woodwork guarantee complete satisfaction to its users. "We're not satisfied unless you are."

1866 CURTIS WOODWORK

"The Permanent Furniture for Your Home"

MOTOR TRUCKS IN THE BUILDING INDUSTRY



Trucks and Trailers for Lumber Haulage

DEALERS CUT COST AND GIVE CUSTOMERS EXCELLENT SERVICE WITH MODERN EQUIPMENT

MOTOR trucks and trailers have won for themselves a definite place in the haulage equipment of the retail and wholesale lumber dealers. Their large capacities, economy in operation when compared with horse-drawn vehicles, and the speed with which they get orders to the customers have combined to make them essential to the successful conduct of a retail lumber business.

The greatest evidence that these facts have been proven to the satisfaction of lumber dealers is the increase in the number of trucks and trailers that are being operated by lumber dealers thruout the country.

In the larger cities, where few of the customers call at the lumber yards for their purchases, trucks and trailers deliver practically all the lumber and other materials the dealers sell. In the smaller towns, dealers who have many customers in the rural districts, too, have adopted this method of haulage.

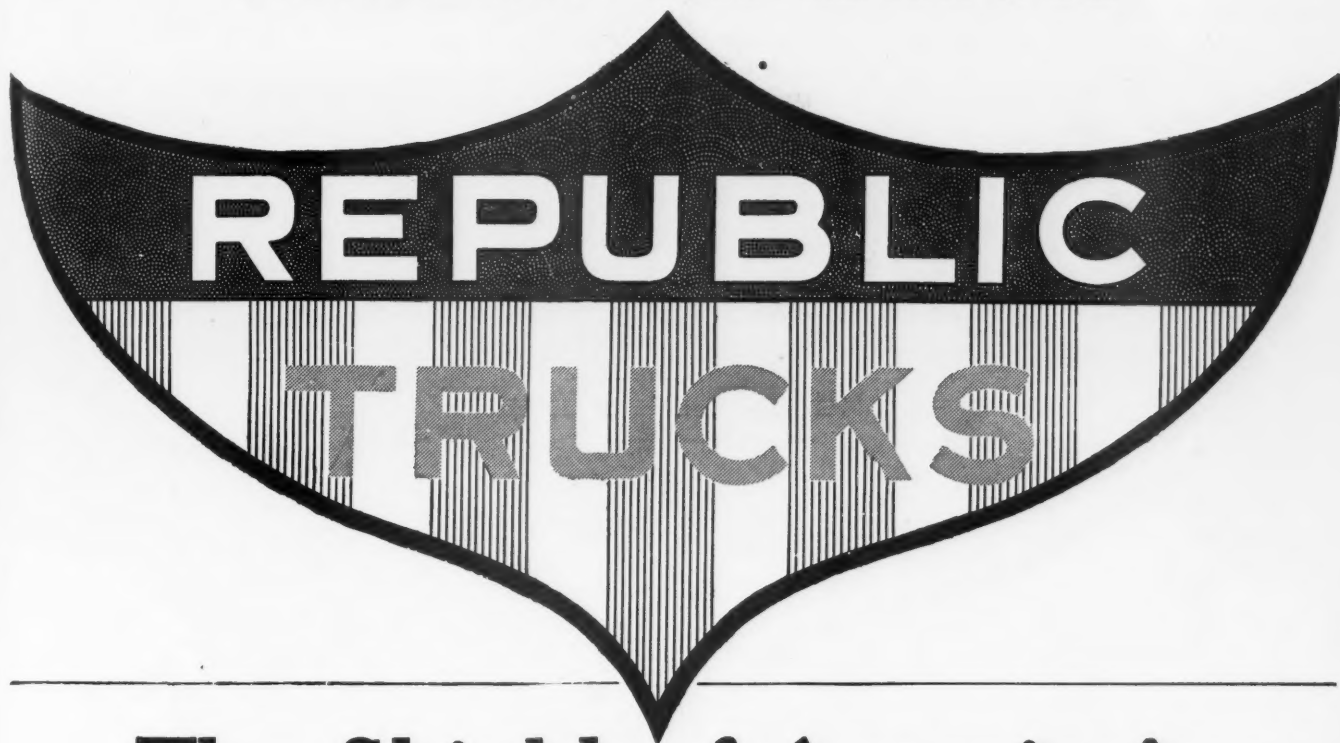
Economy in the operation of motor trucks and trailers comes thru their speed and large carrying capacity. A motor truck will make several times the number of deliveries a day that a team will. Some dealers figure that one truck will replace four teams

(Continued to page 120.)



Scene in the Lumber Yard of Stacy C. Glauser & Son, Chester, Pa. The Glausers Use "White" Trucks for their Hauling and Find that Trucks are the Most Economical Method of Delivering Lumber to their Customers.

The "Yellow Chassis" Trucks—that serve so well



The Shield of America's Greatest Motor Truck Service

There are more than 1400 Republic Service Stations in this country alone—in practically every city, town and community. Republic Service is maintained in thirty foreign countries. Republic satisfaction is world-wide.

- a truck is no more efficient than the service that goes with it.
- this is something you must bear in mind when selecting your truck.
- let the famous Republic shield be your protection.
- it isn't merely a "sign" pasted on a window; it means a fully equipped service organization, amply stocked with parts—always at your service and in your service.
- think this over seriously before you buy.

REPUBLIC MOTOR TRUCK CO., INC.
ALMA, MICHIGAN

NEARLY TWO
MILLION DOLLARS WORTH OF WHEAT
WAS HARVESTED IN THIS COUNTY
THIS SUMMER

OVER 50 COAL MINES
IN SULLIVAN COUNTY
PRODUCE ABOUT
10,000,000 TONS
YEARLY

THE COUNTY
HAS ALSO MANY PRODUCING
OIL WELLS & A SEEMINGLY
INEXHAUSTIBLE SUPPLY OF
NATURAL GAS

SULLIVAN
HOME OF THE
"MUTUAL"

back of's

**SULLIVAN
COUNTY
INDIANA**

M

THE LARGEST SILO IN THE WORLD
IS IN SULLIVAN COUNTY — A
COUNTY FAMOUS FOR ITS PRIZE
WINNING LIVE STOCK

OVER 500 well-to-do citizens of Sullivan County, Indiana, became stock holders in the Mutual Truck Company, partly for personal profit; but largely because they became convinced that by making Sullivan the home of

"America's Greatest Truck"

are being satisfied with a small return (9%) on their investment, they could build up so large a volume of business that their community would, in time, become the home of America's Greatest Truck Company.

These wealthy farmers, stock raisers, coal mine owners, oil and natural gas producers, merchants, public officials

and professional men stand squarely back of us, ample capital to build any number of Mutual Trucks that our customers will demand.

A new plant, with a capacity of producing 10 trucks a day, has just been completed and is in operation.

Our advertising and sales plan is based upon intensive and scientific analysis of haulage problems of each of many industries; and upon rendering an individual service to each of our customers that will be out of the ordinary.

We will sell our trucks, either complete with body or chassis only.

Sizes 2-ton—3½-ton—5-ton. All over-powered, sized and under-priced. Study specifications on next



A Whole Rich County

of Only Industry:

MUTUAL

AMERICA'S GREATEST TRUCK"

wholly from units and parts that have proved themselves to be the Masterpieces of the truck industry.

Specifications 2-Ton Mutual Price—Chassis—\$3,375.00

—Wisconsin UAU four-cylinder 4 1/4 in. bore, 29 h. p. Actual calculating both bore and stroke, 39 1000 rpm. Most other high priced 2-ton trucks use 4 x 5 1/2 motors rated at 25.6 h. p. This was selected, because an exhaustive test all makes convinced us that it was the Greatest Truck Motor".

—Hele-Shaw—Universal No. 5 with grooved plates running in oil. Reason for its smooth, regular pick-up and grip; its ease of operation and wear-long life. Costs us two to three times as much as clutches used on most other high ton trucks.

— Spicer—Highest priced and fully acknowledged to be the best. Points in the shaft and one in the clutch.

— Fuller, Model G-5, mounted 4 speed forward and reverse. How other trucks offer four speeds?

High class trucks have some of the above super-specifications but no other truck in America offers all of them, or corresponding parts of equal merit or equal value. Our 3 1/2 ton and 5 ton trucks are equally noteworthy ranking with the 5 and 7 ton trucks of other makes in power, loading space and general dimensions.

MUTUAL TRUCK COMPANY, SULLIVAN, INDIANA

More for the Money

Compare the specifications given below, item for item, with those of any or all other good trucks, and ask the salesmen of the other makes how much extra they would charge for substituting "Mutual" specifications for their own—including electric lights, weather-tite cab, steel wheels, over-size engine, double-control governor, etc.

Any and every analysis of this kind will prove our statement that the Mutual gives more value per dollar of cost than any other truck.

MUTUAL TRUCK COMPANY

Frame—Parish & Bingham Pressed Steel—6 1/16 in. channel, with 3 in. flange, pressed from 1/4 in. alloy steel. We could build our own from structural steel at half the cost.

Springs—Mather Chrome Vanadium Steel. Best and cost most.

Radiator—Perfex—Cast type, three-point suspension, of our design.

Steering Gear—Ross—with 20 in. wheel. The costliest and most highly perfected type of the most famous maker.

Magneto—Bosch, ZR4, waterproof, and dustproof; with impulse starter.

Carburetor—Stromberg "M"—Latest type.

Cab—Weather-tite, whose equal no other truck maker will furnish for less than \$175 extra—is a part of our regular equipment.

Castings—Electric steel at vital points where others use malleables.

Governor—Duplex (not Simplex) type, controlling both engine speed and road speed independently from each other.

Rear Axle—Worm drive 2 1/2 ton size, ball bearing. Highest priced axle put on a 2-ton truck.

Front Axle—Sheldon, ball bearing steering knuckle type.

Wheels—Smith Metal Wheels, for solid tires and Dayton Steel Wheels for pneumatic tires; furnished as regular equipment, though they cost us 55% more than the best wood wheels.

Tires—Firestone or Goodyear. 36 x 4 front and 36 x 8 rear, solid tires. Pneumatic tires are furnished at a reasonable extra charge.

Bushings—Bound Brook Oilless, thruout. Eliminating oil and grease cups, and insuring constant lubrication.

Gas Tank—25-gallon capacity.

Reserve Lubricating Oil Tank—2 1/2-gallon with indicator and feed valve on dash. No other truck has this important feature.



Motor Trucks in the Building Industry

(Continued from page 116.)

and three men. The addition of a trailer to the truck increases this capacity. The operation of the truck, of course, costs more than to keep a team going, but

roller platform bodies are employed by this firm in making deliveries from its yards to its customers. The yardmen quickly load the trucks and they speed away to their destinations. The roller body permits the unloading of the trucks quickly, saving the time of the man and equipment.

Trailers are used in connection with large and small trucks and with automobiles that serve merely as tractors. The Grove & Weber Co., lumber dealers, Miamisburg, Ohio, have a small automobile with a semi or two-wheeled trailer attached that is used for the delivery of lumber, shingles, etc. By removing the rear of the body of a small automobile and mounting on it a "rocking fifth wheel," the run-about becomes a truck of one-ton or more capacity. One of the advantages of this type of apparatus is that it cuts the original cost of the equipment.



Small Trucks and Trailers Make Efficient Haulage Equipment in the Lumber Yard. Here Is a "Miami" Trailer that More than Doubles the Capacity of the Truck to Which It Is Attached.

the saving of the former over the latter is great.

How the Dealers Save in Hauling Costs

Stacy G. Glauser & Son have an extensive yard and lumber business at Chester, Pa. Chester is not a particularly large city, but the Glauser firm does a large business, both in the city and thruout the rural district nearby. Six motor trucks, all equipped with

The Trailers Help

The four-wheeled trailer, attached to a truck or a small tractor, is another vehicle that is used extensively by lumber dealers. J. M. Saulpaugh's Sons, New York City, operate three such pieces of equipment, purchased about a year ago. E. W. Saulpaugh, of this firm, recently said that after nine months' trial the trailers had more than lived up to the expectations. They had been running continuously every day and had



Heavy Foundation Timbers are Awkward to Transport, But the Modern Heavy Duty Motor Truck Has Successfully Solved the Problem. Here is a "Titan" Carrying a Big Load of Timbers Out of the Yard to the Job.

Miami Trailers Will *More Than Double* the Value of your Truck or Automobile

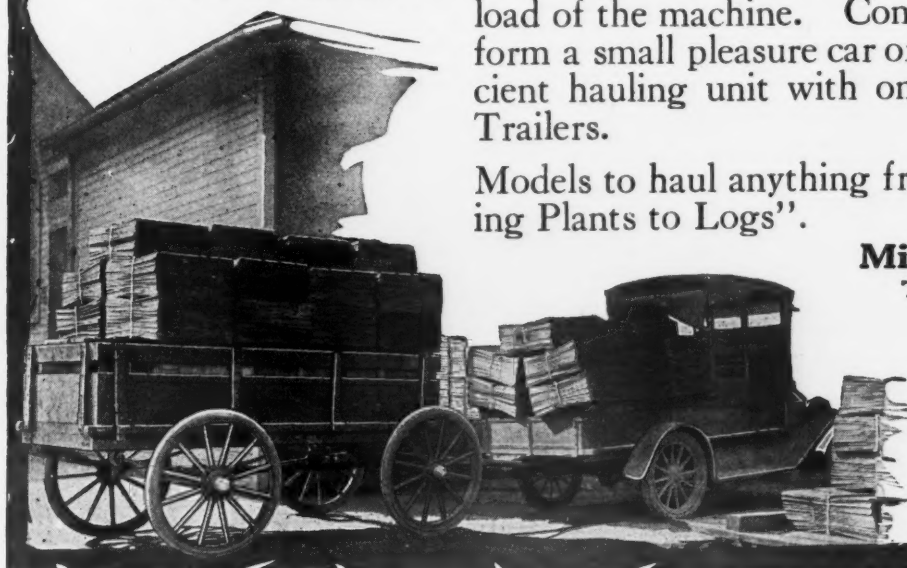
They are built in capacities, from 800 to 6000 pounds. Twenty different models with a body to suit your particular business.

This Model No. 3 is being pulled by a Ford with three times the load of the machine. Contractors can transform a small pleasure car or truck into an efficient hauling unit with one or more Miami Trailers.

Models to haul anything from "House Lighting Plants to Logs".

Miami Trailer Co.
Troy, Ohio, U. S. A.

Put your hauling problems up to us. Let us Demonstrate that you can Solve your Transportation Troubles. Send for Literature.



A HUNDRED DOLLAR LIBERTY BOND FOR A TRADE MARK AND SLOGAN

America's foremost hollow building tile manufacturers have joined the ranks of Associated Industry.

That the great building public may be assured of worthy material every piece of tile must carry a trade-mark—a badge of identification; but we want that trade-mark to be something more than a mere design to be imprinted on each piece of tile for the buyer's protection. We want a trade-mark or "coined word."

FOR HOLLOW BUILDING TILE

which will interpret the true measure of the value of the material itself, since it will become a potent part of all of our literature and extensive advertising in trade papers, farm papers, newspapers and national magazines.

We want a trade-mark wherever seen, in printed form or on the material itself, which will stand for the things the product will do and be a guarantee of the complete co-operation and service of the Association which stands sponsor for it.

Due to mechanical limitations in imprinting such a trade-mark on the material it must not exceed a size larger than 1" wide and 3" long.

This competition is open to anyone who has an interest in it and award will be made by the Board of Directors of The Hollow Building Tile Association. Competition closes September 15, 1919.

THE HOLLOW BUILDING TILE ASSOCIATION

America's Leading Hollow Building Tile Manufacturers
111 W. Washington Street, Conway Building
CHICAGO, ILLINOIS



A Small Tractor and a Big Load of Lumber. J. M. Saulpaugh's Sons, New York City, Have Three Small Tractors and "Trailmobiles" Which They Find Economical and Efficient. "Our Only Regret Is that We Did Not Get Them Sooner," Says E. M. Saulpaugh.

caused no trouble. "Our only regret," said Mr. Saulpaugh, "is that we did not have them sooner."

The illustrations accompanying this article tell the story of the use of motor trucks and trailers by lumber dealers. All of the pictures were taken while the trucks and trailers were going about their daily work. The various uses made of them is clearly shown.

Points in Selecting the Truck

That these successful lumber dealers are keeping their motor-driven haulage equipment in daily operation is excellent evidence that they are money-makers. The selection of the size and character of trucks and trailers, however, should be determined with a view to the amount of present business the prospective purchaser is doing. There is no economy in making the investment necessary to secure a large truck when the business warrants only a small one; neither is it good business to have inadequate equipment.

Trailers and semi-trailers are becoming more and more popular for lumber haulage. They increase

materially the capacity of the larger trucks and double or more than double that of the smaller trucks. These auxiliaries, too, keep the truck on the road practically all the time, when two are used with each tractor.

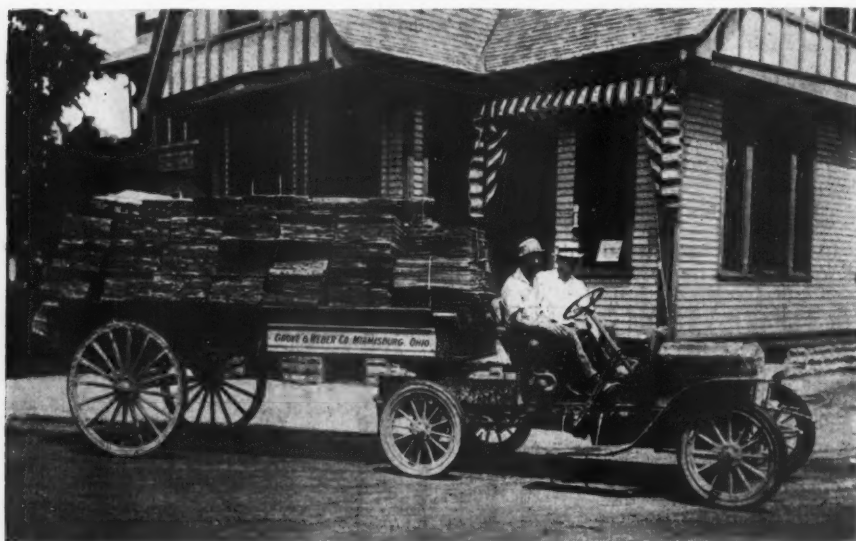


Trailers for Hauling Brick and Tile

TEN tons of brick is a prohibitive load for an auto truck. But that is what was carried by a combination of truck and four-wheeled trailer owned by Edward A. Super, Washington, D. C. The accompanying illustration shows the truck and trailer operated by Mr. Super. On the truck are three tons of brick; seven tons are loaded on the trailer.

This more than doubling the capacity of the truck has brought the trailer and semi-trailer into general use among dealers in brick, tile and other building materials. Trailers, of course, do not cost as much as trucks; but without a truck, trailers would be of little use. But the combination is one that gives the material dealer an economical and efficient piece of haulage equipment. By the use of two trailers, one to be left at the yard for loading while the other is being taken to the destination of the materials, is a usual method of operation.

This latter idea has been adopted by the Dresden Brick Co., which uses semi-trailers in connection with its trucks, the latter being employed only as tractors. The accompanying illustration shows a tractor and semi-trailer leaving the yard with a healthy load of brick, while the second semi-trailer propped up is being loaded, ready for attachment to the tractor on its return. A third semi-trailer, left at the building site



Grove & Weber Co., Miamisburg, O., Use a "Martin Rocking Fifth Wheel" Semi-Trailer Attached to a Small Tractor to Deliver Shingles and Other Materials from the Yard.

Trailmobile

Trade-Mark Reg. U. S. Patent Office

Deliver with Salesman's Auto

The Motorless
Motor Truck

Thousands in Use

DIVISION No. 1
Light Four-wheeled
Trailmobiles for use
with passenger cars
or light trucks,
1,250 lbs., $\frac{3}{4}$ ton
and 1 ton.

DIVISION No. 2
Heavy-duty Four
wheeled Trailmo-
biles for use with
trucks; 1½ tons,
non-reversible; 2
tons; 3½ tons; and
5 tons, Reversible.

DIVISION No. 3
Trailmobile Semi-
Trailers: 2 tons; 3
tons; 5 tons; and
7 tons.

IN BUSINESS where there is not enough hauling to keep a vehicle going all the time, the salesman's roadster or car is used with a Trailmobile. Loaded with as much as 2 tons, it travels all kinds of roads at speeds up to 20 miles an hour.

When fast emergency service is necessary a passenger car can help out the trucks. Most Trailmobiles are pulled by trucks but the lighter sizes can be used behind either a passenger car or truck. Many lumber yards and light contractors depend entirely upon passenger cars for motive power.

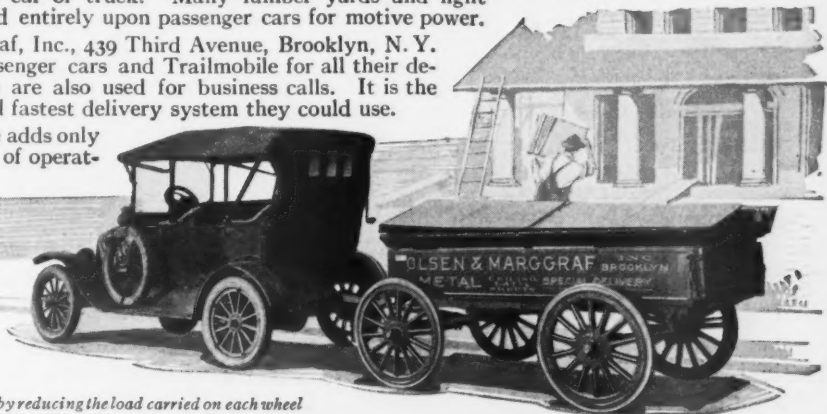
Olsen & Marggraf, Inc., 439 Third Avenue, Brooklyn, N. Y. use their two passenger cars and Trailmobile for all their deliveries. The cars are also used for business calls. It is the least expensive and fastest delivery system they could use.

The Trailmobile adds only slightly to the cost of operating the cars. It travels ordinary roads and climbs grades. Tracks perfectly at any speed and does not sideway. Lasts for years.

Write for booklet
"Economy in Hauling"

The Trailmobile Co.
583 E. Fifth St.
Cincinnati, Ohio

Good roads are preserved by reducing the load carried on each wheel



Boys, She's Some Saw
Feels just right in your hand—perfectly
balanced—runs fast and cuts easy.

Bishop's "High Speed" Saw No. 250

Will satisfy your fondest desire for a perfect saw. You can be justly proud of the fact that you own one. They are CARE-
FULLY tempered, tough and flexible, and are made of the finest
high grade steel that retains its keen cutting edge.

You cannot go wrong when you invest in a BISHOP "HIGH SPEED" SAW—they are
subjected to the extreme test before leaving the factory

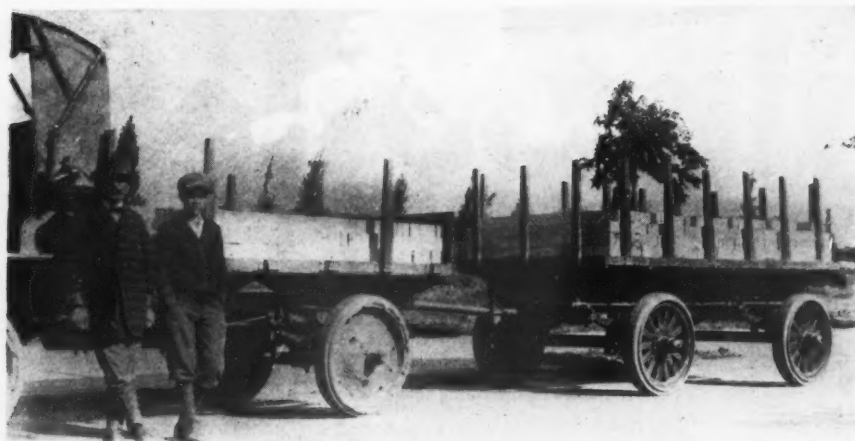
26" \$4.00—24" \$3.25—22" \$3.45—20" \$3.25—18" \$3.10

Write for booklet describing the various kinds of Bishop Saws

A Saw For Every Service

GEO. H. BISHOP & CO.
LAWRENCEBURG, INDIANA





Ten Tons of Bricks Hauled by One Motor Truck. That's the Load Edward A. Super, Washington, D. C., Has on this "Jeffery Quad" and "Arcadia" Trailer—Three Tons on the Truck and Seven on the Trailer.

to be unloaded, adds to the efficiency of the truck.

Additional Trailers Money Savers

Because of their weight and the necessity for rather careful handling, loading and unloading brick and tile is a comparative slow job. There is no economy in having the truck idle while the men load and unload them. By the use of additional trailers and semi-trailers, there is a great saving in operating cost.

The use of trailers enables the truck owner to greatly increase the capacity of his truck at a very slight additional expense and in many cases makes truck operation economical where otherwise it might not compete successfully with haulage by team.

On good, hard roads with moderate grades, almost any good truck has sufficient excess or reserve power to haul, in addition to its own capacity load, a trailer with an equal load, or by the substitution of a fifth wheel for the truck body, to haul a load of double

or triple its rated capacity with a semi-trailer or two-wheeled trailer. In the latter case, half the load is carried on the rear of the truck and the other half on the trailer wheels.

The fifth wheel is attached to the truck frame directly over the rear axle and supports the front end of a semi-trailer. It permits an up-and-down rocking motion and commonly is provided with springs to take up the shock of starting the semi-trailer with its load.

The fifth wheel trailer provides the most economical and convenient means of transporting excessively long timbers, poles, pipes,

derricks and so forth, or unusually heavy articles, such as steam boilers and engines, structural beams, stone columns, etc.

When four-wheeled trailers are to be used with their regular models many manufacturers make certain changes in construction, such as strengthening the rear end of the frame, attaching a pintle hook or building in a spring draw-bar to connect the trailer, and reducing the gear tactics so the truck will travel at lower speed and have more pulling power. Other truck makers, however, have found that such changes are not necessary with their models.



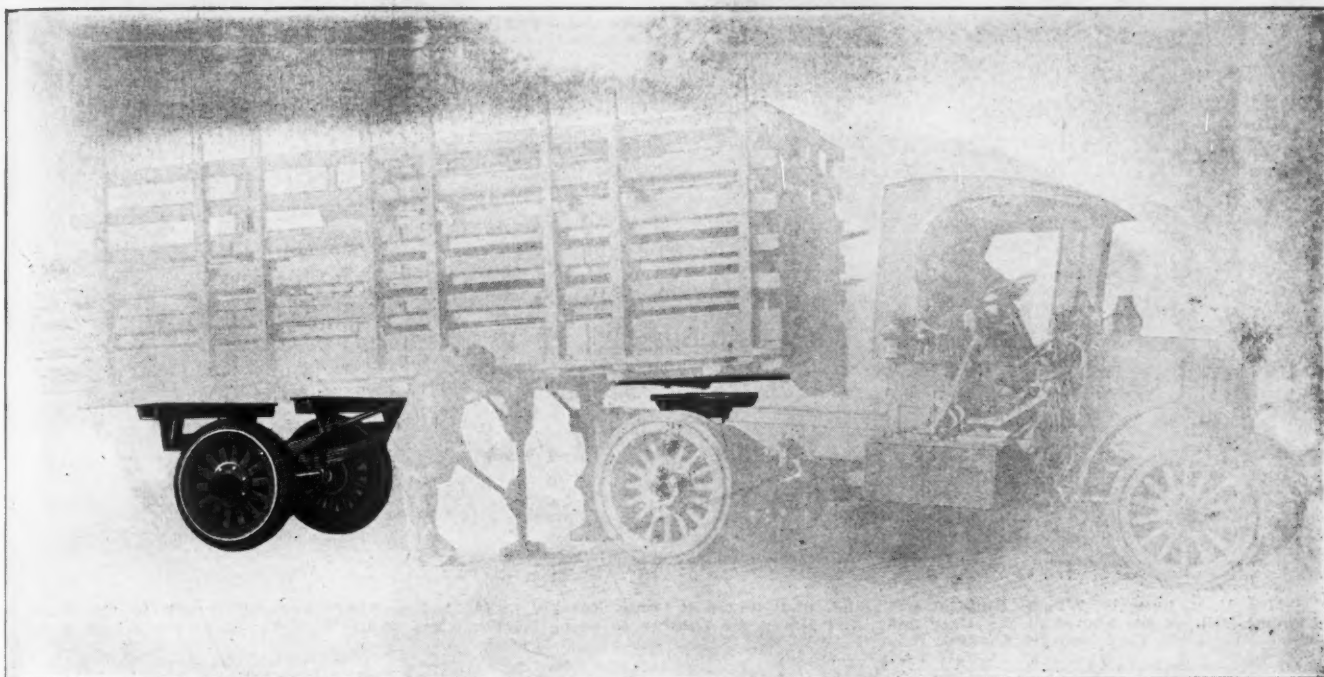
Woman Uses Truck to Haul Lumber from Mill to Building Site

IN the mountain lake region of California it is easy to secure lumber for building, for on the shores



An Extra Semi-trailer Keeps the Motor Truck in Operation Continuously. The Dresden Brick Co. Has Two Trailers. While the Truck Is Taking One to the Building Job, the Other Is Being Loaded. Attaching and Detaching the Trailer Requires Only a Few Minutes. This "Packard" Truck and Semi-Trailer Is Carrying Eight Tons of Brick.

Get the Idea of the Martin Method



Martin Fifth Wheel and Rear End Assembly shown in relief

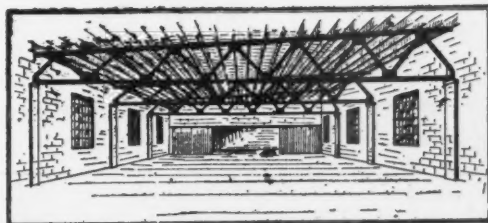
*THE MARTIN METHOD multiplies the load-carrying capacity of the automobile three fold. *THE MARTIN METHOD is based on the famous Martin Rocking Fifth Wheel, which makes the connection between the motor chassis and the Semi-Trailer. *THE MARTIN METHOD combines perfect steadiness with the necessary amount of flexibility. *THE MARTIN METHOD makes a very small investment, brings your motor truck up to date, and with increased load-carrying capacity. *THE MARTIN METHOD is immediately available. We supply parts or Semi-Trailers complete. *Write for our interesting and fully priced catalog showing Fifth Wheels, Rear End Assemblies and Semi-Trailers, 1 to 10-ton capacity.

MARTIN ROCKING FIFTH WHEEL CO., P. O. Box 1224-B **SPRINGFIELD, MASS.**
Manufacturers of Martin Rocking Fifth Wheels, Semi-Trailers, Semi-Trailer Parts, Rear End Assemblies, Floating Bearing Axles, Castor Jacks

MODERN GARAGES



GARAGE—ROUND LAKE, ILL.



GARAGE—ST. JOHNS, MICH.

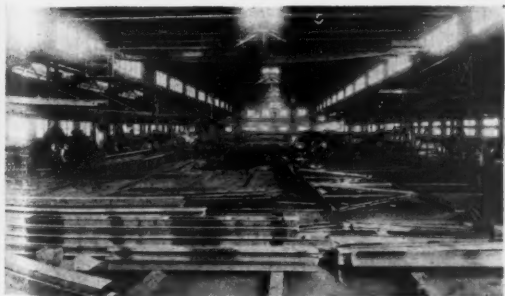
Write for One of Our "Garage Illustrations," Showing at Least 50 Modern Buildings Designed By Us

STRUCTURAL STEEL—MODERN STORE FRONTS—FIREPROOF BUILDINGS

STEEL WINDOWS—FIRE ESCAPES—WIRE PRODUCTS—STEEL BRIDGES—ELEVATORS—STEEL
CEILINGS—SKYLIGHTS AND CORNICES—MILLWORK AND GLASS—ROOFING

"INTERNATIONAL SERVICE"

Means immediate shipment of your orders from one of the largest stocks of steel in the world
Plants operate 24 hrs. per day



INTERIOR VIEW OF STRUCTURAL STEEL PLANT
EVANSVILLE, INDIANA

INTERNATIONAL STEEL & IRON CO., Inc.

Address Dept. 18

EVANSVILLE, IND.

OPERATING

INTERNATIONAL STORE FRONT CO.—INTERNATIONAL WOODWORKING CO.
INTERNATIONAL BRIDGE CO.

WE OPERATE

STEEL PLANTS—SHEET METAL PLANTS—WOODWORKING PLANTS



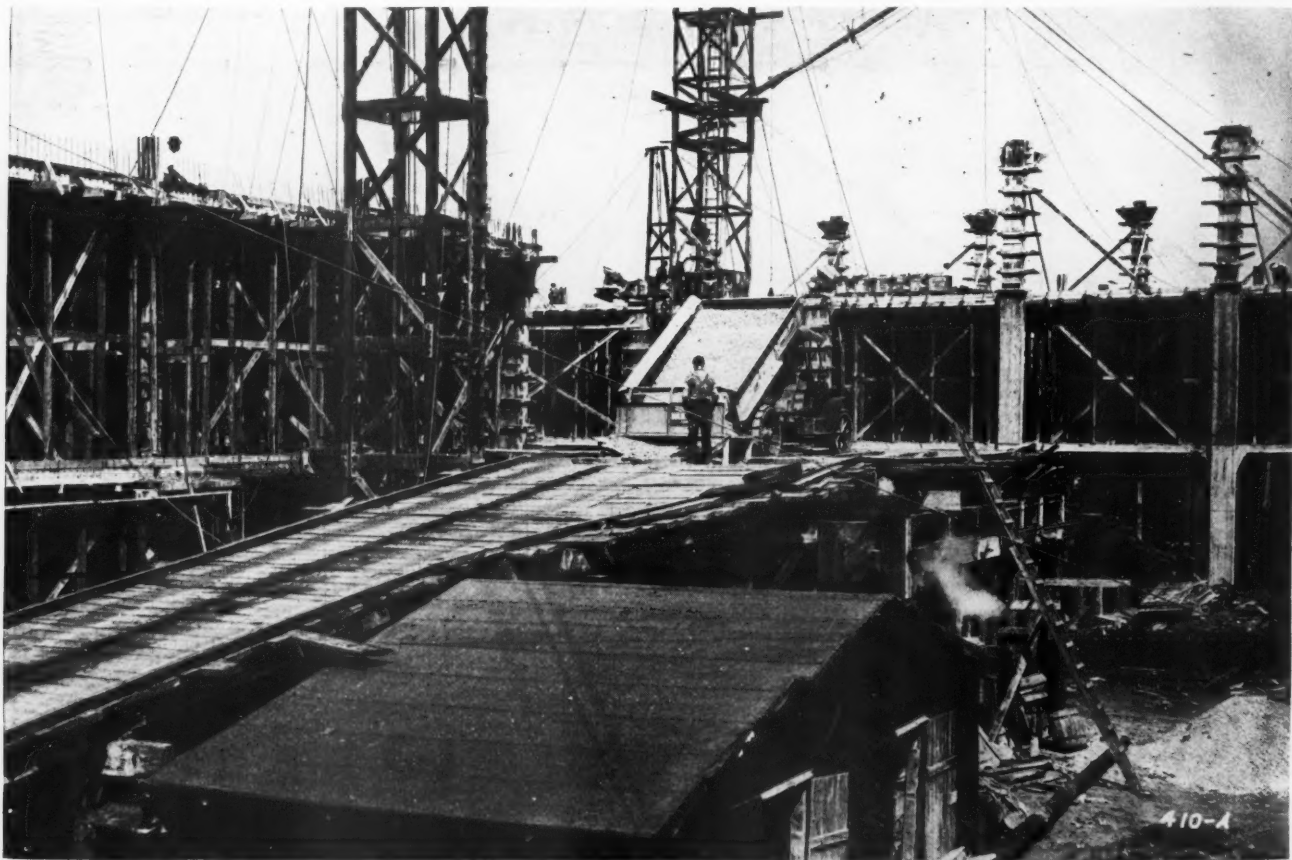
Mrs. M. B. Betterly, Who Is Building a Number of Cottages at Camp Eureka, Calif., Drives This "Federal" Truck to the Moyer Lumber Mill, on the Shores of Big Bear Lake, and Hauls the Lumber to Camp Eureka. Mrs. Betterly Is Shown at the Wheel of the Truck, While the Yard Men are Loading It.

of many of the lakes are lumber mills that turn the timber from nearby forests into building lumber. Such a mill is owned and operated by the Meyer Lumber Co., on the shores of Big Bear Lake, in San Bernardino county.

On the same lake Mrs. M. B. Betterly established Camp Eureka and built a number of summer homes.

They sold readily. Then Mrs. Betterly decided to build more homes. She obtained the lumber from the Moyer mill, driving from Camp Eureka in a motor truck and hauling back the lumber. The accompanying illustration shows Mrs. Betterly at the wheel of the ton and a half truck, which is being loaded.

Thus it is seen how the motor truck connects di-



Big Buildings Require that Everything Be Done in a Big Way. Here Is Shown a "White" Truck Delivering Crushed Stone to the Hopper Above the Concrete Mixer. The Truck Is One of the Essential Pieces of Equipment for a Job Like This.



"BARCREST" SHINGLES

A Complete Product, Shingles, Labor and Color Effect

Fine shingles of uniform quality play a most vital part in Building. In the large beautiful home or the bungalow, everything depends on the quality of shingles used.

"BARCREST" Shingles are sawn from the finest live cedar—sorted into 3 distinctive sizes—13", 13" or 24" lengths. They may be had in any of our twenty beautiful shades or any special color desired. If you are interested in Service and Attractiveness that will help you get business and keep it, write for information about "BARCREST" Shingles. Ask for roofing suggestions, color samples and catalog.

ADDRESS ALL INQUIRIES TO THE

H. S. Barber Cre-Sote Stained Shingle Company

Originators and Sole Manufacturers of
"BARCREST" SHINGLES

Offices and Factory:
173 BEAUFAIT AVE.

DETROIT, MICH.
Edgewood 1317

R.I.W.
REMEMBER IT'S WATERPROOF
REG. U.S. PAT. OFF.

TOXEMENT
PATENTED

Insures Your Concrete
Jobs Against Water

USE IT EVERYWHERE!

For Water Proofing

The concrete construction of silos, concrete floors, elevator or boiler pits, foundations, and everywhere your work has water to resist.

For Bonding Tile and Cement to Concrete

On a big estate in Rhode Island, 6,000 sq. ft. of tile bonded to concrete and long exposed to sea air and storms have stood the test of time.

Both field and laboratory tests have demonstrated the success of "R. I. W." Toxement in bonding cement to concrete.

LOW COST INSURANCE

The cost of using "R. I. W." Toxement is next to nothing. On ordinary work 2% is customary, and where high water pressure must be contended with, 3% is used.



Send that postal now!

And we will mail you our illustrated pamphlet immediately, giving you complete information on the purpose and methods of using "R. I. W." Toxement, and its value and cost to you.

DO IT NOW.

TOCH BROTHERS

Technical and Scientific Paint Makers Since 1848
320 FIFTH AVE. NEW YORK, N. Y.



rectly the lumber industry and the home builder in California. The Moyer company uses trucks to haul the logs to the mill, and customers use trucks to take away the finished lumber.

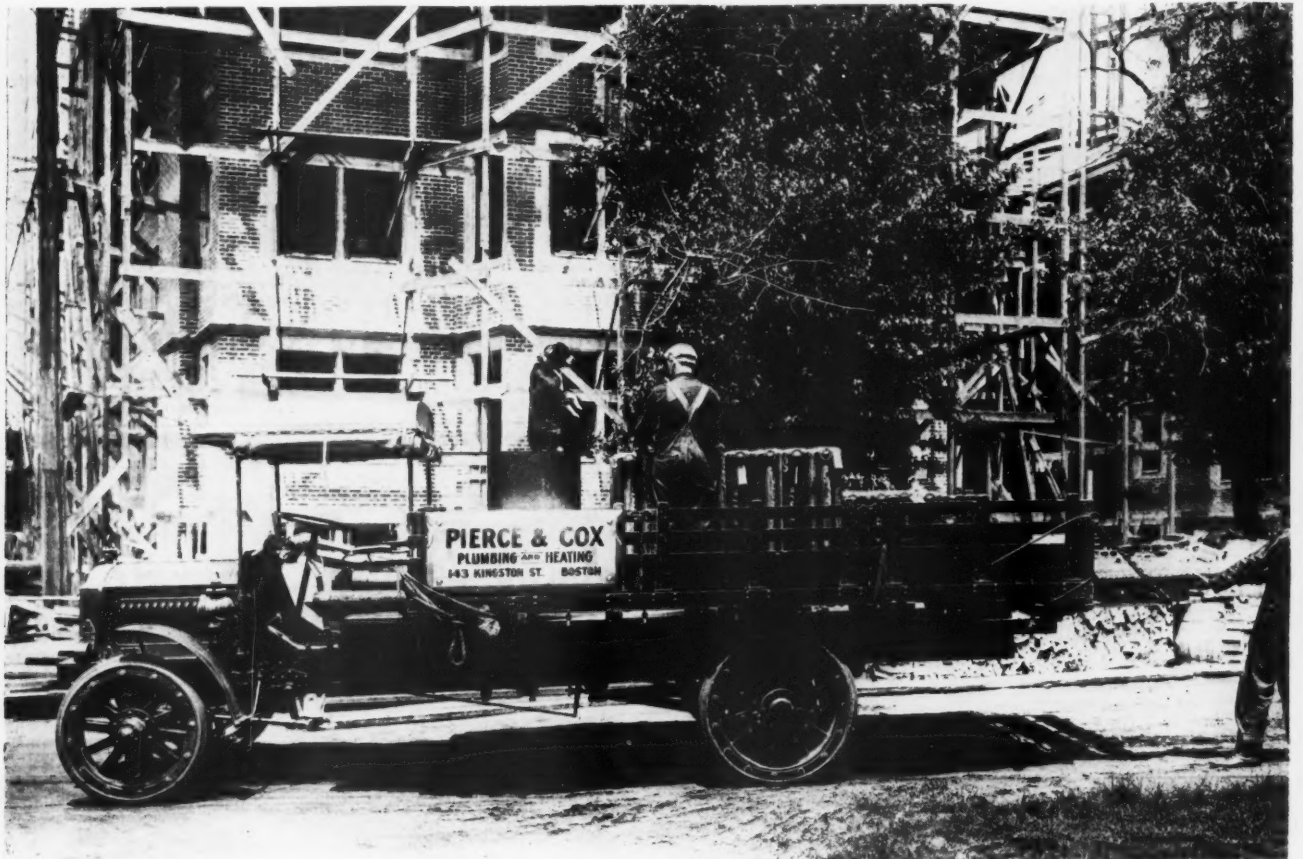


Heavy Duty Trucks On Big Building Operations

THE speed with which large building operations are completed in the United States is and has been a revelation to the Europeans, especially since American construction engineers built the several harbors and warehouses, camps and other structures needed by the army in Europe. But the explanation of this speed is simple. American builders use the

conveyed easily to the concrete mixer is shown in one of the accompanying illustrations. A plank roadway, leading to a platform over the mixer is constructed. The truck climbs to the platform and by use of a hoist the body is tilted and the crushed stone and sand is dumped into a hopper, from which it is let into the mixer. All of these operations are done quickly and practically without labor, as gravity is the force that delivers the materials after the motor truck has performed its duty.

As the building is near completion, the truck is still active. The heavy radiation equipment is conveyed to the building by motor trucks. The picture shows one of the trucks operated by Pierce & Cox, Boston,



Delivering the Radiation to the Apartment House Building Job. Pierce & Cox, Boston, Mass., Use this "Packard" Truck to Get the Radiators, Piping etc., to the Building. Incidentally the Building Is an Excellent Example of Modern Apartment Houses.

most efficient equipment in their operations.

One piece of equipment on large construction is the heavy-duty motor truck, the truck with a large capacity. From the time the excavation is started until the last of the materials has been placed on the job, the motor truck is busy. Huge steam shovels drop several tons of rock and soil into the motor trucks, loading them in one operation. The truck moves away and another takes its place.

The heavy materials, cement, sand and crushed stone for the foundations, are brought to the site and dumped by motor trucks. So are the heavy pieces of structural steel, and the brick, tile and other materials.

How the materials are placed so that they can be

delivering radiators and pipes to a large, new apartment house.

Speed and carrying capacity are what contractors on large building jobs and the dealers who furnish the materials require in their haulage equipment. The motor truck is the answer.



THERE is one great satisfaction in this time of enormous building activity. That is the confidence that the American people have in the future. Buildings are needed and are being built. The cost is of little moment. The man who doubts that prosperity will continue has little vision and is overlooking his opportunity.

AMBLER ASBESTOS BUILDING PRODUCTS

Ambler Asbestos Shingles



Roof covered with Ambler Asbestos Shingles (Century Brand)—American method. Upper sidewalls covered with Ambler Asbestos Building Lumber—Half-timber effect.

Made in French, English and Honeycomb styles and in a large range of colors and sizes. Ambler Asbestos Shingles Century Brand are all

Fireproof Waterproof Everlasting

And they never require paint or repairs.

MANUFACTURED BY

Asbestos Shingle, Slate & Sheathing Co.

Ambler, Pennsylvania

Factors
KEASBEY & MATTISON CO.
Ambler, Penna.

Ambler Asbestos Shingles (Century Brand)
Ambler Asbestos Building Lumber and
Ambler Asbestos Corrugated Roofing.

How to Make a Profit on Re-Roofing Jobs

By E. S. Hanson

IN the building field another familiar idol has been cast down, another established belief shattered. The old contractor who is "set" in his ways has always said it couldn't be done successfully—putting new shingles of the fire-resisting type over old shingles; but it has been done, and is being done as a commonplace job of every-day occurrence in some progressive localities; and it makes the roof look brand new, too.

The Old-Timer is not always willing to acknowledge it; but if he is unable to see things as they are, with his head in the sand, that doesn't alter the fact or put a brake on the car of progress.

This has no reference, it must be understood, to shacks in the tenement districts of the big cities, nor yet out on the frontier of civilization—places where the only purpose of a roof is to keep out the rain, and where there is little desire for aesthetic effect and no money to gratify such desire were it stimulated.

No, these roofs are being put on in some of the best residence districts, like Oak Park, Ill., for instance—a town which has sometimes been accused of snobbishness, and which, at least, can boast of about as high an average value of residences as any suburban town in the Chicago territory. Here the Purnell Roofing Co. is making a specialty of this kind of work, and either one of the brothers in the firm will show you in a half-hour drive that homes of some of the biggest Chicago

business men are being given new roofs and an improved appearance in this way. River Forest, too, adjoining Oak Park, is another town where the Purnells are operating.

Labor Shortage Solved in Re-Roofing Jobs

Either one of these men will tell you that it was largely thru lack of labor that they developed their present method of operation. Men who were willing to spend their time ripping off old shingles with a spade, getting rid of the old nails and then filling in to make a tight foundation for asphalt shingles, simply could not be secured during the period when labor was so scarce. But the Purnell boys are young and forward looking. They are not afraid to break with tradition and do a little pioneering into new country.

So they tried the new method—and liked it. So did the owners. For one thing, there was no aftermath—no old shingles lying all over the lawn, and the neighbors' lawns, to detract from the enjoyment of the new roof. There were no nails innocently concealed in the grass to test the strength of the lawn mower, and at least cripple it if not putting it entirely out of business.

But, most important of all, the roof itself was all right. It showed no signs of the old shingles under it, especially after a few days of hot weather, during which the shingles settle down into regular lines and surfaces and take on that appearance of slate for



Re-roofing Over the Old Shingles. Purnell Bros., Oak Park, Ill., Put the New Roof Material Right Over the Old, and Claim a Great Saving in Cost. No Labor Is Required to Remove the Old Shingles, Neither Does the House Owner Have to Clean Up the Litter.



Do You Build Your Own Scaffolds?

Contractors Who Make Every Detail Count For A Profit Don't

They can't afford to, lumber is too high. Wages are too high to let men waste days building wooden scaffolds.

Reliable Scaffold Brackets

are now in use by almost every reliable contractor. They are real economy, that is why contractors everywhere are choosing the better, cheaper way—Reliable scaffold brackets. They are strong and safe, and when not in use can be folded, making them very compact.

You will find Reliable scaffold brackets to be the best and most profitable investment you ever made.

Write us for particulars, we want to tell you many more good things about Reliable Brackets.

Our catalogs will interest you and show you definitely why you cannot afford to build your own scaffolds.

Write us today.

**ELITE MANUFACTURING
COMPANY**

ASHLAND OHIO



YOUR LABOR COSTS HAVE DOUBLED AND WORKMEN ARE SCARCE

The "Low Down" Continuous Concrete Mixer

Will cut your labor bills in half and triple your season's business.

Mounted on trucks for outside work and equipped with 4 h. p. novo gasoline engine. Also mounted on skids equipped with tight and loose pulleys for attaching to line shafting in concrete block plants. Guarantees uniform finished concrete. No weak or lean spots in the finished job. Automatic measuring device—fool proof.

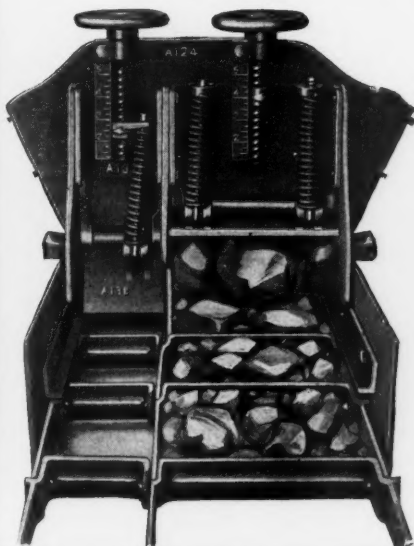
Build Up Your Reputation With a "Low Down"

Write for Our Catalog and Names of Satisfied Owners in your Vicinity.

ELITE MANUFACTURING CO.

Ashland

Ohio



which they are so much admired.

New Roof Over the Old Shingles

So the Purnell boys have kept on renewing roofs in this manner, usually landing several contracts a day during the busy season.

"What's the use of taking off the old shingles," they argue, "when this only increases the cost to the owner and furnishes him some perfectly useless litter which has to be cleaned up? We can save him money—and incidentally we can save a little for ourselves—for there is no profit in taking off old shingles and filling in the roof boards, while the owner is willing to divide the saving with us, just to be relieved of the annoyance of cleaning up the litter, to say nothing of the insurance against having a sudden shower come up while the roof is off and ruin several hundred dollars' worth of furniture and decorations."

It costs at least a dollar a square to rip off the old shingles and get the roof boards ready for the new asphalt shingles. Some roofers are so shortsighted that they think they are losing money if they eliminate this operation and thus "lose" this dollar. But, as the Purnell boys have pointed out, they need not lose all of it. The owner is perfectly willing to share this saving for the benefits above enumerated; and, which is better, to get this dollar and pay it out to a high-priced workman who ought to be doing better work on which you could make a profit, or to have a part of it as increased profit on the new roof?

Now one man will put on a roof of average size in three days; and when it is done it shows a reasonable profit, and the owner can come home at night and take delight in it without having to wonder who is to clean up the lawn.

The Cost of Roofing

It will be of interest to digress here long enough to give the figures which one Milwaukee builder has made from his experience on this kind of work. On placing asphalt shingles over the old roof he figures this way:

Shingles	\$5.50
Labor	1.50
Nails24
Cost per square.....	\$7.24

His price on this is \$10 per square, showing a profit of \$2.76. But on taking off the old shingles and replacing them with asphalt his cost sheet shows this:



Showing the House After the New Roof Is On. None of the Old Shingles Was Removed, But the Job Was First Class, as Will Be Seen by the Picture.

Shingles	\$5.50
Labor	3.50
Nails24
Cleaning up50

Cost per square.....\$9.74

Manifestly it would not be possible for him to sell this roof at the same price of \$10 per square.

But let us get back to Oak Park and River Forest.

Purnell—either of them—will tell you that even in aristocratic and well-to-do Oak Park people are not overlooking a little saving in their bills, and that the lower contract figure which they are able to make on roofs put on in this way serves to stimulate business more than one might realize. All of which decreases the "overhead" and increases the profit to the roofing firm.

How the Roofs Are Laid

Then there are some practical suggestions to the man who does this kind of work which they like to emphasize. In laying asphalt shingles over wooden shingles care must be exercised that nails should not be over 4½ to 5 inches from the butt of an asphalt shingle and that the asphalt shingles be laid to the weather exactly as much as the wood shingles are laid. If the wooden shingle lies 4 inches to the weather, then the asphalt shingle must lie 4 inches. Any curled wooden shingles should be nailed down. The valley should be laid first.

Old wooden shingles will obviously do more good on the roof than in the shrubs alongside of the house and on the neighbor's lawn. If a wooden shingle roof leaks only in four or five places, then by laying the asphalt shingle over the wood it conserves whatever good there is left in the wooden shingle roof.

ARRIVED! AT LAST!

To The Paving Contractors Of The World

HIGH DRUM STEEP CHUTE

BOSS COMBINATION BUILDING AND PAVING MIXER

END DISCHARGE TYPE

A STURDY, COMPACT "EASY TO MOVE" END DISCHARGE MIXER

Pour Your House or Bridge Foundations, Double Capacity of Sidewalk or Curb Crew

—or—

Put in 400 or 600 Yds. Paving or Floors a Day.

TWO-WAY TRACTION IF WANTED **STEEL ROLLER DRIVE** **HYATT ROLLER BEARINGS**

Built in "one bag" size complete with Automatic Power Loader-Measuring Pressure Water Tank. Built nearly entirely of steel

GET OUR PRICES

MIXERS
ALL SIZES
PAVERS
GROUTERS
HOISTS - CARTS
WRITE or WIRE

The American Cement Machine Co Inc.
Keokuk Iowa
THE 300,000 HP ELECTRIC CITY

PROMPT DELIVERIES FROM STOCKS IN FOLLOWING CITIES:
New York, Pittsburgh, Richmond, Cambridge, Mass.; Indianapolis, Chicago, New Orleans, Minneapolis, Seattle, Spokane, El Paso, St. Louis, Louisville, Atlanta, Springfield, Ohio.

MIXERS · HOISTS · PAVERS · PUMPS · CARTS

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

WRITE FOR CIRCULAR



BRICK CONSTRUCTION

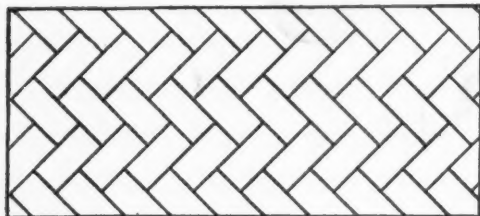
for Modern Carpenters and Builders



Fine Brick Homes--How to Build With Brick

ARTISTIC EXTERIORS ARE SECURED BY VARIOUS METHODS OF LAYING UP FACE BRICK

ASIDE from the stability and solidity that is secured by building with brick, the various color effects and artistic exteriors that masons can get with face brick recommend this material to the prospective builder. The various bonds, soldier courses and panel effects that are used in the modern brick buildings all combine to make them exteriorly attractive, and, at the same time, the owner has a building that will last for many, many years.



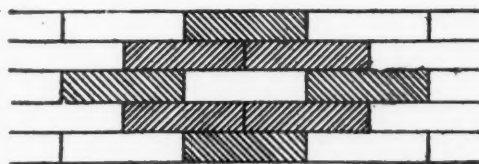
Herringbone Effect Secured by Laying the Brick Diagonally.

Brick buildings of all kinds and for all purposes are being erected everywhere now, especially in the cities where, within the fire limits, only noninflammable materials can be used for exterior walls. As these limitations have been put into effect, the architects and contractors and the masons who actually lay up the walls have evolved various methods of placing the bricks so that even a plain, simple wall becomes a thing of beauty.

On page 136 is shown a reproduction of a fine brick home, of standard construction, that was designed by

Charles E. White, Jr., Oak Park, Ill. This home is of the type of construction that is popular everywhere, while the design is excellent.

When solid brick walls are not used, but the building is of frame construction, the same exterior appearance can be secured by the use of face brick as a veneer by laying up a single brick wall and tying it to the sheathing.



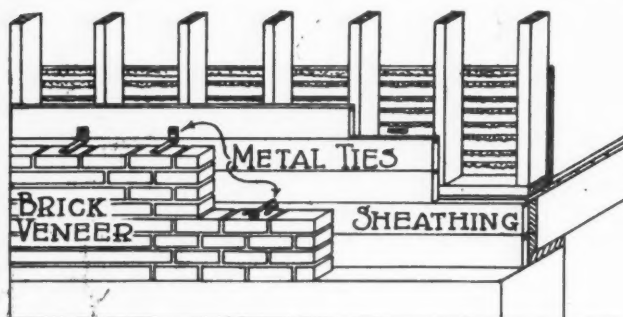
Ornamental Frieze and Panel Effects Secured with Brick of Two Colors.

In either of these methods of building with brick, the owner has an exceptionally fine structure.

Brick Veneer Walls

The more simple forms of brick construction were discussed in a preceding article. The builder who has studied that information now comes to walls faced with pressed brick, or face brick. This is used as veneer over either common brick construction or over standard frame construction.

The bonding of the face to the common brick is made by clipping off the back corners of the face brick about every sixth course and laying diagonal headers behind. This is a method that is not con-



Section Showing How Brick Veneer Wall Is Tied to Sheathing. Two Types of Metal Ties Are Shown.

THE "WONDER 5"

TAKES THE BACKACHE OUT OF CONCRETE

And fills your every possible need for a mixer. It is ruggedly built and dependable and embodies many features that you will find in no other mixer. It has a capacity of 5 cu. ft. of mixed concrete per batch. A full batch of 1-2-4 concrete. The construction makes it exceptionally valuable in narrow alleys, in streets where there are car tracks, and on foundation and bridge work. The wide opening, quick discharge makes possible a great saving of time on every job.

If you are looking around for the mixer that will serve you best and longest, and speed up your work—making possible a greater profit on each job—you will surely choose the "Wonder 5".

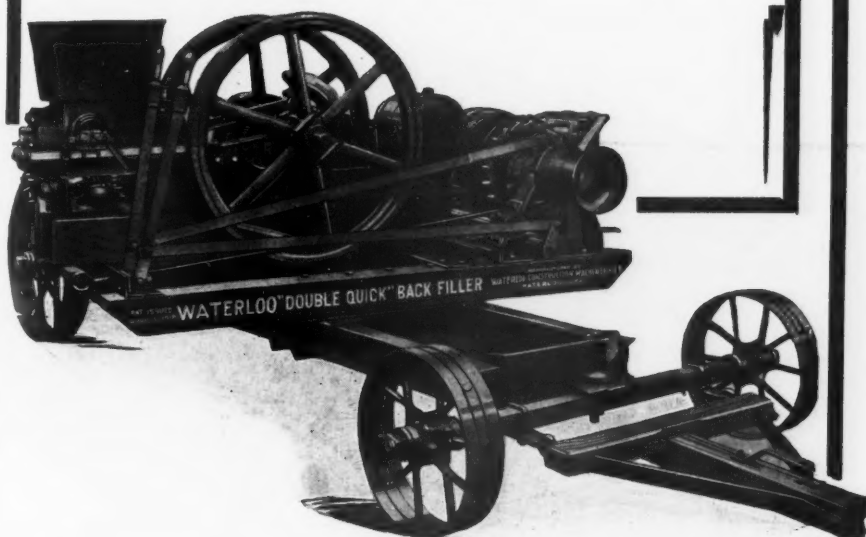
Tho we manufacture mixers in many sizes, each have features that you cannot find elsewhere.

The Revolving Platform Non Traction Backfiller

is the machine you perhaps already know much about. The engine and pulling drum are mounted as a unit on a turntable. They swing in a complete circle or can be locked in four positions to permit the use of the pulling drum from the front, rear, and at right angles to the machine. The entire operation of the machine in backfilling is controlled by one lever.

We manufacture a complete line of contractors' equipment. Write and tell us your needs. We want to counsel with you.

Write today for our big general catalog.



*Wonder
"5"*

WATERLOO CONSTRUCTION MACHINERY CO.

Formerly

**Waterloo Cement Mach.
Corporation**

**103 Vinton Street
Waterloo, Iowa**

Manufacturers of

**MIXER PAVERS
HOISTS PUMPS
BACKFILLERS**

**AND GENERAL
CONTRACTORS
EQUIPMENT**

sidered the best, but will answer certain requirements under special conditions, such as might be imposed by an endeavor to save waste of face-brick headers, and by difficulty of face brick and common brick not coming out to exactly the same heights. This last difficulty, which is by no means uncommon, is solved by means of galvanized wall ties, made in lengths from 7 to 16 inches. By means of these ties differences between the levels of the face and backing courses are made negligible, as the ties can be bent to conform to any existing difference. When these ties are used good practice calls for binding every fourth course with one tie to each face brick.

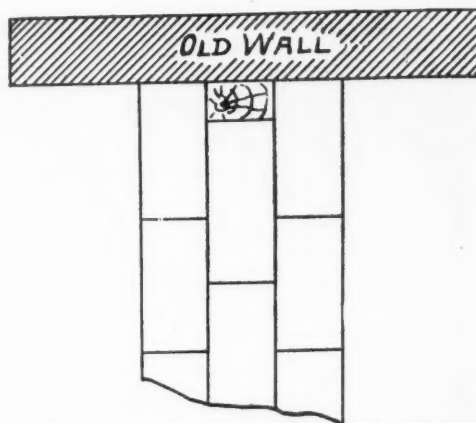
Use of Metal Ties

Pieces of hoop iron laid flat in the bed joints of brick work are used to give the wall longitudinal strength and to prevent cracks from uneven settlement. This practice is known as hoop-iron bond. A method of bonding a veneer of brickwork to a wooden building is by means of iron wire hooks and flat metal ties. A staple is driven into the wood and the hook attached, the latter being imbedded in mortar joints. The flat tie is nailed to the sheathing and imbedded in the mortar joint.

In making additions to or special alterations in buildings, where a new brick wall adjoins an old

wall, it is advisable to anchor them together. This can be done by taking out some of the old brickwork and inserting iron anchors in the space thus provided, or a 2 by 4-inch studing can be spiked to the old wall and the new wall built around it.

Orna-mental ef-fects of many de-signscanbe produced with ordi-nary brick by constructing panels, friezes, borders, etc. Also good effects can be secured by the different methods of pointing the mortar joints. The struck joint is the most common. It is made with the point of the trowel, which rests on the lower course of brick and is guided by the top course as it is drawn along. It would seem that this is a joint



Bonding Old to New Work. A 2 x 4 Stud Spiked to the Old Wall and New Work Built Around It.



An Exceptionally Fine Example of a Brick Home. The Colonial Effect Is Modified by the Living Porch, and the Pergola Connecting the House and Garage are Features. The Home Was Designed by Charles E. White, Jr., Architect, Oak Park, Ill.



"THE STANDARD" LOW CHARGING EFFICIENCY

Is in evidence on almost every job where the contractor is of the progressive type.

Efficiency and economy of time, labor, and money, are the principles that bring home the big profits to contractors. And they are the deciding factors in his ultimate success or failure.

"THE STANDARD" LOW CHARGER

is the progressive contractor's choice—it meets the demands of today. It is simply constructed—strong and durable. And its low charging principle cuts the cost one-third, and makes it equally practical on any size job.

Let us tell you more about "The Standard". Write us for catalogs and advice—we are in position to advise you as to which size and type of mixer will best suit your needs.

We can help you speed up your work. We can help you make a greater profit from each contract. You need to know about "The Standard" efficiency.

"The Standard" line also includes hoists, pumps, saw tables, etc., and a complete line of contractors equipment.

Send for Catalog No. 44, and mention the items in which you are interested.

The Standard Scale & Supply Co.

1631 Liberty Ave., Pittsburgh, Pa.

New York
145 Chambers St.

Philadelphia
523 Arch St.

Chicago
163-171 N. May St.

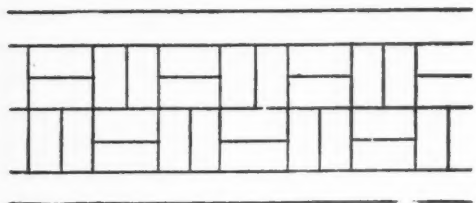
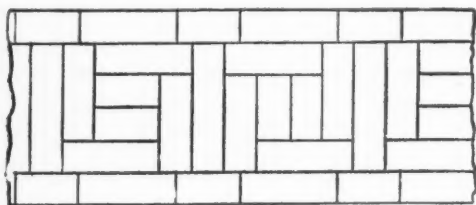
Baltimore
409 N. Gay St.

Cleveland
1547 Columbus Rd.



born of operative necessity, as it is the easiest one to make from the inside of the wall. It is often objected to as it offers a table for receiving water. It advocates claim it makes a smoother wall.

The weather joint is more difficult of accomplishment, but sheds falling water. It is opposed because in looking up the wall the observer can see the pro-



Panel and Frieze Effects Secured With Common Brick, All of One Color. The Designs Depend Wholly on the Joints.

jections of the under side of each brick at the mortar joint. There are several other joints made with special tools to give the shapes. Flat or flush joints are made by cutting away with the trowel

the wet mortar that protrudes beyond the face, making the joint flat and flush with the wall, leaving the surface rough, or a rough-cut joint, or smoothing it with the trowel, making it a smooth joint.

Estimating Number of Bricks

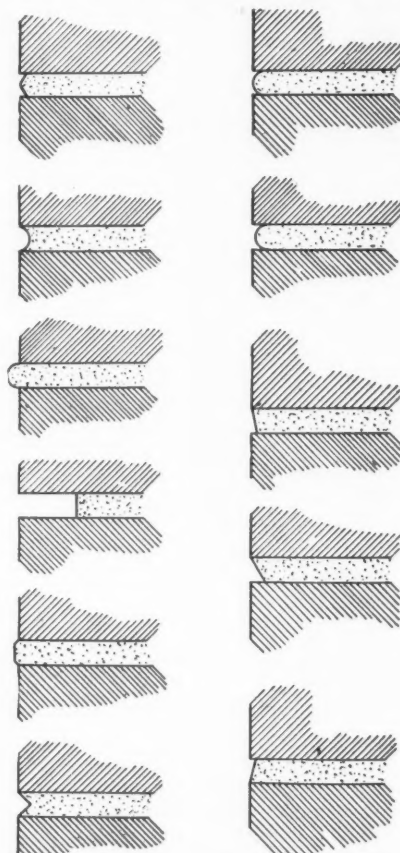
The following table, made by T. C. Mars, of the Face Brick Association of America, shows how to estimate the number of brick in a square foot of wall surface. To get the number in a square foot of wall, multiply by the number of brick widths in the thickness of the wall.

Size of Brick Face	NUMBER OF SURFACE BRICKS TO THE SQUARE FOOT					
	Mortar Joints	$\frac{1}{8}$ in.	$\frac{1}{4}$ in.	$\frac{3}{8}$ in.	$\frac{1}{2}$ in.	$\frac{5}{8}$ in.
Common— $8\frac{1}{4} \times 2\frac{1}{4}$		7.240	6.774	6.360	5.984	5.664
Face— $8\frac{3}{4} \times 2\frac{3}{4}$		6.774	6.361	5.981	5.644	5.333
Paver— $8\frac{1}{2} \times 2\frac{1}{2}$		6.361	5.984	5.643	5.333	5.049
Roman— $12 \times 1\frac{1}{2}$		7.298	6.718	6.204	5.760	5.348
Norman— $12 \times 2\frac{1}{4}$		5.002	4.702	4.433	4.189	3.967
English— 9×3		5.049	4.806	4.551	4.331	4.127
		5.049	4.806	4.551	4.331	4.127

In estimating square feet in wall surface subtract area of all openings exceeding 2 square feet, and multi-

ply remainder by number of brick indicated under proper mortar joint and opposite "size of brick face" you intend to use. The result will be the number of brick required for the surface of the wall.

In case the brick run *under* or *over* these sizes by $\frac{1}{8}$ inch, or multiple thereof, there will be respectively *more* or *less* brick required than the table indicates. By calculating four bed joints (of 12 inches each) and six cross joints (of depth of brick used) to the



Styles of Pointing Brick Work. Artistic Effects Can Be Gained by the Method of Pointing the Mortar Joints.

square foot, you will come near enough to your revised estimate.

Thus, if $\frac{1}{8}$ inch is added to the length of the brick, this means $6 \times 2\frac{1}{4}$ (depth of brick) $\times \frac{1}{8}$, or 1.7 square inches over the above what you require in each square foot of wall surface, as you have figured it from the table. Now estimate the surface area of the unit you have

considered in the table, say, $8\frac{1}{2} \times 2\frac{1}{2}$, or 21.25 square inches, and divide by 1.7, which gives you 12.5, meaning that in every 12.2 square feet you would need one brick less than your table estimate gives; or, if the brick were shorter by $\frac{1}{8}$ inch, you would need one brick more every 12.5 square feet.

If, on the other hand, the depth of your brick was increased by $\frac{1}{8}$ inch, you have 12×4 (length and number of bed joints) $\times \frac{1}{8}$, or 6 square inches more than you need. Dividing this into the area of the table unit already considered, 21.25, you get 3.54, which is the number of square feet that will save you one brick from your table calculation. Or, if the depth is $\frac{1}{8}$ inch less, you will have to add one brick for every 3.54 square feet of wall surface.

In case the increase in the size of brick is a multiple of $\frac{1}{8}$ more or less, the estimate can be easily made by using the figures for $\frac{1}{8}$ as the base.

To estimate on common brick, add 5 per cent, on face brick, 2 per cent, to cover **wastage**.

Brick



How to Build and Estimate



HERE is the MONEY MAKING BOOK you have waited for all your life——

The approaching era is one of BRICK Construction—Are you prepared?

How many brick does that house need?

How many brick will a brick-layer lay in a day?

How much cement and lime are required for mortar to lay 1000 bricks?

How many hours' time is required to mix it?

How is a window frame set in a brick wall?

This book tells you all these things and many more. It is a complete manual of information on solid brick residence construction. It goes into detail and shows, step by step, how to figure brick costs; and by many pages of letterpress, photographs, drawings and plates of details, shows how actually to build the house.

Also 6 Full Page Architectural Detail Drawings

As a pathfinder we want this valuable work in the hands of every Architect, Contractor, Builder and Building Supply Dealer in the country. We wish to confine its distribution to those interested. Therefore, if you like it after you've seen it, send us 25c to cover distribution cost. If you don't like it, return it at our expense. Just attach the coupon to your business card or letterhead and you will get the book by return mail.

The Common Brick Manufacturers' Association of America

111 West Washington Street, Chicago, Illinois

SEND NO MONEY — JUST THE COUPON

GENTLEMEN—Please send me "Brick—How to Build and Estimate" as offered in the August number of the "AMERICAN BUILDER." If this book is of value to me, I will remit 25c to cover distribution cost; if not, I may return it at your expense.

We are planning on erecting:

Name

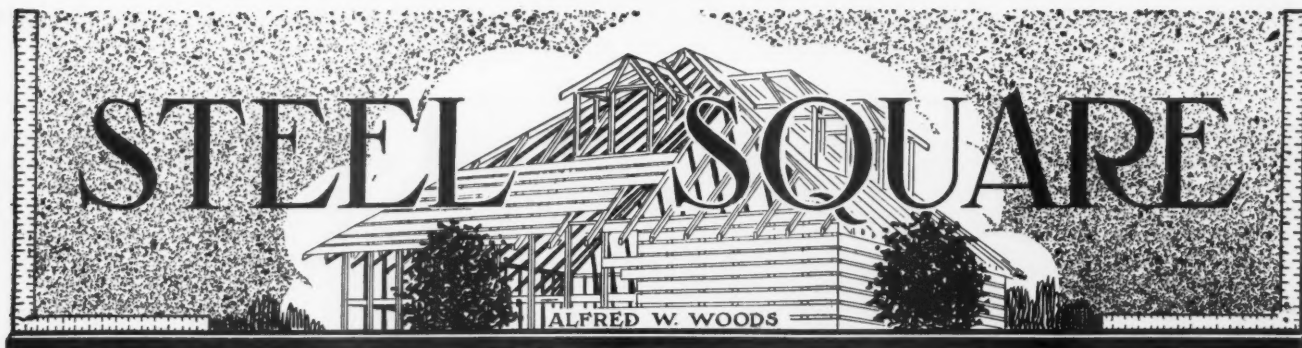
Business

Town

State

Special offer to Architects, Contractors, Builders and Building Supply Dealers.
 For sale in Bookstores, in Board Binding, \$1.00

LOOK FOR THIS MARK ON
 EVERY BRICK



Possibilities of the Steel Square

ILLUSTRATING ROOF FRAMING BY THE USE OF THE TANGENT AND HOW THE SAME APPLIES TO THE STEEL SQUARE IN OBTAINING THE CUTS

By A. W. Woods

IN our last article we laid the foundation, or rather illustrated how the angles are determined by circular measure and how the same may be obtained by the aid of the steel square in connection with a table of tangents up to 45 degrees, which, as we explained in the former article, covers the whole field of angles solvable by the aid of the steel square; but the figures as given do not stop alone with what may be obtained with that instrument. Therefore, it is our purpose in this article to take up the subject where we left off; and to do this, it is necessary to reproduce the table of tangents. In order to save space, will not illustrate them in connection with the circle and square, as in the former article, but give the table separately along with their equivalents in common fractions to the one-twenty-fourth part of an inch, which is near enough for practical purposes.

Referring to the table of tangents, let us see what can be done with it in the way of calculating basis. Remember that the reckoning is from 12 on the tongue as the point of unity and that the tangents are reckoned from the heel along the blade.

First, we can find the miter for any angle in degrees.

Second, the side cut of jack for any angle.

Third, the length of the side of regular polygons.

Fourth, backing the hip.

Fifth, the area of polygons.

Here are five heads, any one of which would furnish a good text for an extended article alone, but we will take them up in the order given and in as few words as possible explain

what may be accomplished with them.

First—In our last article we explained how to find the angle for any miter, but we did not show how to find the miter for regular polygons, and to illustrate this in its simplicity, we will take, for example, the miter for a square corner. Now, everybody who knows anything about carpentry knows that 12 and 12 on the square give the required miter; but how many know why these figures give the miter?

To obtain correct results, the square must be applied to a straight edge, or line which in degrees contains one-half of the number of degrees in the circle, or, in other words, 180 degrees, and is therefore a straight line just the same as the straight edge of the timber from which to cut the several pieces required in the polygon.

By dividing 180 by 4 (number of sides), the quotient will be 45, and the tangent for 45 degrees is 12, as shown in the table; and that is why 12 is used on the blade.

For a pentagon, or a 5-sided frame, the quotient would be 36, and the tangent for 36 degrees is shown to be 8.72 (8 17/24). Then 12 and 8 17/24 are the figures to use for the pentagon mitre. Proceed in like manner for other polygons.

Suppose the polygon had 180 sides, then the quotient would be one, and the tangent for 1 is .21 of an inch (5/24); then 12 and 5/24 would be the figures to use on the square, and so on to the end, where the polygon dies out in the infinitesimal and merges into the true circle.

Some of the polygons contain frac-

DEGREES. TANGENT. EQUIVALENT.

45	12.00	= 12
44	11.58	= 11 7/12
43	11.19	= 11 5/24
42	10.80	= 10 19/24
41	10.43	= 10 5/12
40	10.06	= 10 1/12
39	9.72	= 9 17/24
38	9.38	= 9 3/8
37	9.04	= 9 1/24
36	8.72	= 8 17/24
35	8.40	= 8 5/12
34	8.09	= 8 1/12
33	7.79	= 7 19/24
32	7.50	= 7 1/2
31	7.21	= 7 5/24
30	6.93	= 6 1/12
29	6.65	= 6 2/3
28	6.38	= 6 3/8
27	6.11	= 6 1/8
26	5.83	= 5 5/6
25	5.60	= 5 5/8
24	5.34	= 5 1/3
23	5.09	= 5 1/12
22	4.85	= 4 7/8
21	4.61	= 4 3/8
20	4.37	= 4 3/8
19	4.13	= 4 1/8
18	3.09	= 3 1/2
17	3.67	= 3 2/3
16	3.44	= 3 5/12
15	3.22	= 3 5/24
14	2.99	= 3
13	2.77	= 2 3/4
12	2.55	= 2 13/24
11	2.33	= 2 1/3
10	2.12	= 2 1/8
9	1.90	= 1 11/12
8	1.68	= 1 2/3
7	1.47	= 1 1/24
6	1.26	= 1 1/4
5	1.05	= 1 1/24
4	.84	= 5/6
3	.63	= 5/8
2	.42	= 5/12
1	.21	= 5/24

Table of Tangents and Their Equivalent Figures on the Blade of the Steel Square.

Waterproofing and Waterproof Paint Products

Every building you build needs waterproofing, damp-proofing or protective paints of some kind.

One of the 18 Ceresit Products will meet your need and give dependable results.

Ceresit makes basements, cisterns and other work waterproof for all time. Cem-bric is a waterproof paint for brick and cement exteriors. Indurite is an economical method of hardening concrete floors. When writing for catalogue state which of our products you are most interested in and samples will be sent.

This book is for YOU, and contains 32 pages of practical information for the protection of building construction.

CERESIT

TRADE MARK
REGISTERED

Look over this list of Ceresit Protective Products:

Cement Waterproofing

Brick and Cement Paints

Industrial White Enamel

Damp-proof Plaster Bond

Transparent Waterproofing

Acidproofing

Foundation Coating

Smokestack Paint

Asbestos Roof Putty

Ready Mixed Paints

Mortar Colors

Ceresit Waterproofing Company

910 Westminster Building, Chicago

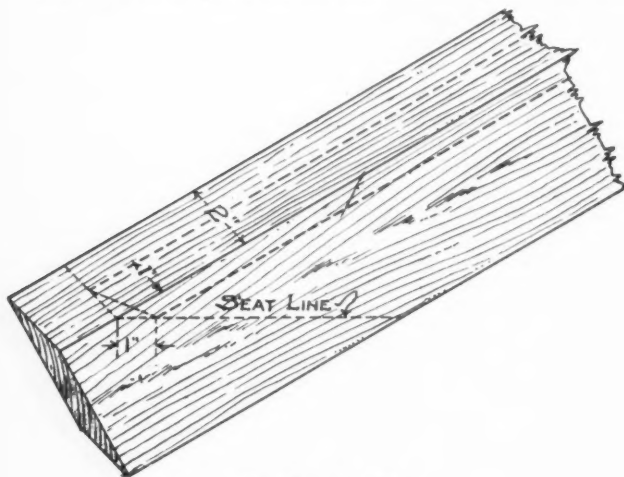
Don't wait to send for your copy of this valuable waterproofing guide. The edition is limited and you may lose out if you don't write today.

Write on your letterhead or send business card for your copy of this 32 page book on waterproofing and protective products for building construction.

tions in the quotient. The most notable of these is the octagon, it being $22\frac{1}{2}$ (not given in the table), and its tangent is 4.97 ($4\frac{23}{24}$).

Side Cut of Jacks

We will now pass on to the second phase of our



Backing the Hip.

subject, side cut of the jack. It should be remembered that the side cut is simply a miter on an incline and all that is necessary to obtain it is to take the same figures as mentioned above for miter of the respective polygon, but instead of taking 12 on the tongue, the length of the rafter for a 12-inch run should be substituted, and the side of the square on which the latter is taken will give the proper angle.

In case of very steep pitches, it is necessary to reverse the figures on the square in order to take advantage of the blade to accommodate the extra length caused by the pitch.

Length of Side of Polygon

Passing to the third phase, the length of the side of the polygon. This, too, is very simple, as the quotient before described also represents the length of the side of the polygon, as 12 is the length of the side of the square frame when the inscribed diameter is one foot; 8.72 inches is that for the pentagon and .21 inches is that for a polygon of 180 sides.

Backing of Hip

Passing on to the fourth phase, these proportions also govern the backing of the hip, so that its beveled back will lie in the plane of the roof and may be found as follows:

Consider the tangent as to one-half of the hip's thickness, and this amount set off on the seat line will give the point for the gauge line on the side of the rafter from which to remove the wood to a center line along its back.

For instance, we will suppose the hip to be two inches thick; then one-half of its thickness would be equal to one inch, and by considering the tangent as so many twelfths of one inch, to be set off on the seat line. That is, take it in the case of the square-

cornered building, the tangent being twelve inches, would represent twelve twelfths, or a whole number, and is therefore equal to one-half of the hip's thickness, and would be the proper amount to set off on the seat line, as shown in the illustration.

For the pentagon, it would be $8\frac{17}{24}$ twelfths of one inch, as the proper amount to be set off, and in the building of 180 sides, it would be $\frac{5}{24}$ of one-twelfth of an inch. This is getting it down pretty fine, but that is what it would be, as the same proportion must hold for any angle the building may have and that, too, regardless of the pitch given the roof, as the swing of the seat line in reference to the edge of the hip regulates the gauge point. In other words, as an illustration, if the hip stood straight up, the seat cut would then be a square cut, yet the amounts as before mentioned would be the proportion to set off on same for the side gauge lines.

We will now pass on to the fifth phase, and that is the value of the tangent in finding the area of angles. Knowing the tangent and the diameter and radius, it is simply a matter of multiplication.

There are other things in connection with the tangents that we would like to mention, but as we have already strung this out longer than we had expected, will not say more at this time, but next month will continue the subject of tangents, showing how they apply in cases of uneven pitches.



GOODS well bought are half sold. That is an axiom of successful merchandisers. The contractor sells again all the materials he buys to put into a building. Care in making out bills of materials, so that there is as little waste as possible, more than pays for the labor in the extra profits. For it should always be remembered that every cent wasted comes out of the contractor's pocket—he has that much less left when the building is completed.



THERE are so many ways in which money can be wasted on a building job that only eternal vigilance can prevent it. This is especially true when contractors are busy. It is a difficult matter to have several jobs going at once and give each one the personal attention it deserves. A competent foreman is cheap at a good, high price.



The Unselfish Girl

"Do you like Miss Prattle?"

"Yes, she's so generous. Never keeps anything to herself and is always ready to give away even her best friend."—*London Tit-Bits*.



Her Birthday

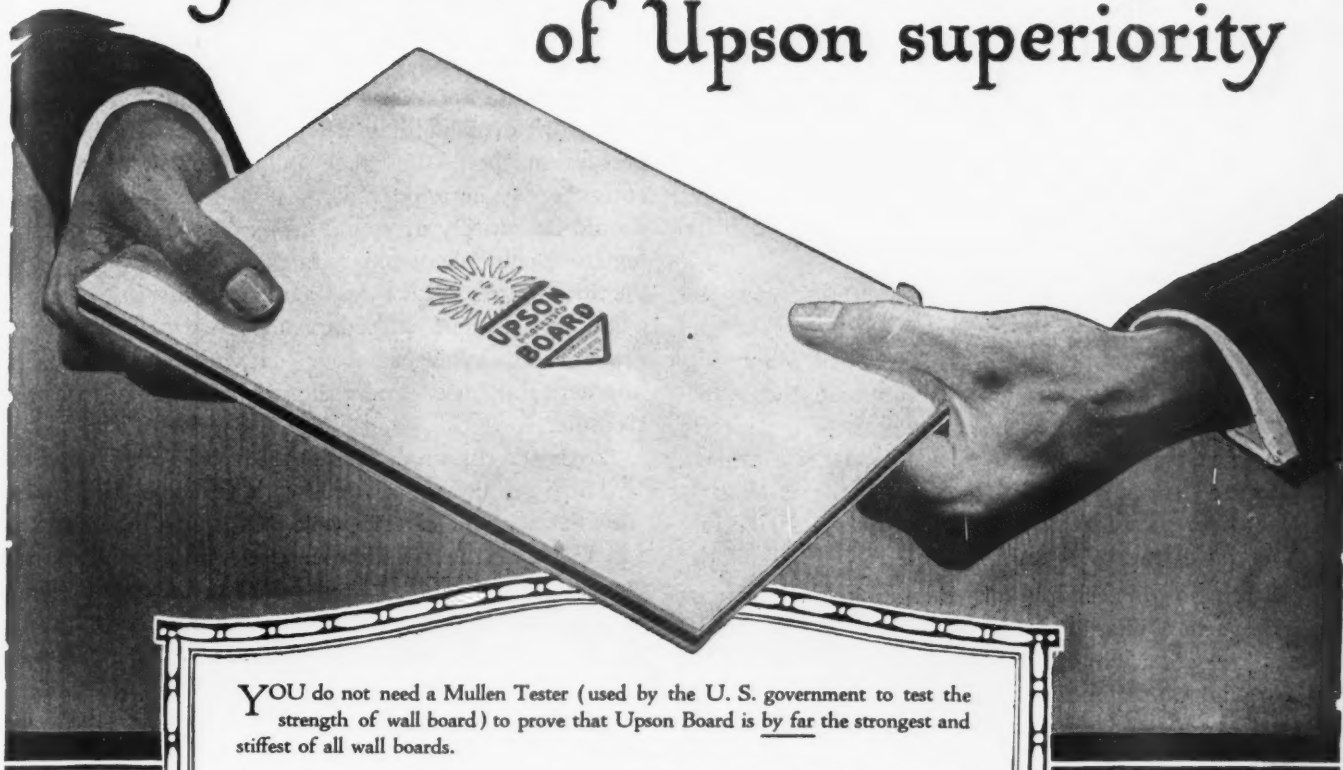
Mrs. Styles—"Oh, dear!"

Mr. Styles—"What's wrong now?"

Mrs. Styles—"I was just thinking how fast time flies."

Mr. Styles—"Doesn't it? Why tomorrow you'll be observing your twenty-eighth birthday again."—*Yonkers Statesman*.

Your hands will convince you of Upson superiority



YOU do not need a Mullen Tester (used by the U. S. government to test the strength of wall board) to prove that Upson Board is by far the strongest and stiffest of all wall boards.

Your two hands will show you this, and many other points of absolute superiority about this "most dependable wall board in America."

Make these tests yourself.

Test No. 1. Break a piece of Upson Board with your hands. Then break any other wall board. It is ridiculously easy by contrast. The reason is this: Upson Board is made of long, tough, pure wood fibers, of the highest grade, combined under our special formula, then compressed under many tons pressure, and laminated into hard, stiff, woodlike panels.

Test No. 2. Whittle a piece of Upson Board. Note the clean smooth cut like a piece of soft pine. Then whittle any other board and notice the spongy, ragged edge.

Test No. 3. Paint a piece of Upson Board with any good flat paint. Notice how smooth the paint dries out, and what a splendid bond you get. The paint will not discolor, chip, nor flake.

More than twenty paint-makers of America use Upson Board to display their standard finishes.

Paint any other wood pulp board. Chances are that the board will "throw" the color of the paint. Boards that are "treated" with wax or non-drying oils cannot give a good bond.

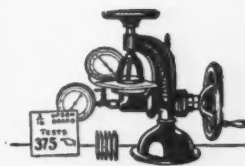
In fairness to yourself, make the above tests. They will prove to you that Upson Board is the most dependable board in America. They will show you why there has been less than one complaint to each three million feet sold. They will show that the little difference in price does not measure the big difference in quality. They will show you why the builder who specifies Upson Board is protecting his own reputation, and creating a steady year-round business for himself.

THE UPSON COMPANY, LOCKPORT, N. Y.

Trade Mark
Registered



U. S. Patent
Office



This machine proves Upson Board nearly twice as strong as other boards. Most pulp boards test but 220 to 240 pounds to the square inch. Any stock panel of Upson Board should test more than 350 pounds to the square inch.

UPSON BOARD

THE DEPENDABLE BOARD WITH THE FAMOUS BLUE CENTER

How to Build to Prevent Damage by White Ants

DEPARTMENT OF AGRICULTURE ISSUES BULLETIN ON SUBJECT FOLLOWING INQUIRY BY THE AMERICAN BUILDER FOR ONE OF ITS SUBSCRIBERS

EDITOR'S NOTE—In May a subscriber of the AMERICAN BUILDER asked how white ants, or termites, could be kept out of buildings and what could be done to repair the damage already done by these wood destroyers. The Editor forwarded the communication to the Bureau of Entomology, of the U. S. Department of Agriculture, and the reply was published in the July issue. Because of the importance of this subject, the Department has issued a bulletin describing the ants and how to build to prevent damage by them. A resume of the bulletin, furnished by the Department, is given herewith.

UNLESS proper care is taken to make buildings white-ant proof, and to eliminate these ants from buildings already established, the insects may cause serious damage, especially in the Southern States, say entomologists of the United States Department of Agriculture in Farmers' Bulletin 1037, just published by the department.

White ants, or termites, are essentially wood destroyers, says the bulletin, and live in nests in the wood of dead trees, decaying logs or stumps in the forest; in the foundation timbers of buildings, fences, and other structures of wood in contact with the ground; or in a labyrinth of underground passages in the earth usually underneath wood or vegetation. An average colony contains several thousand individuals, but owing to their subterranean habits they frequently carry on their work unnoticed and it is sometimes very difficult to destroy them once they get established in a building.

Destructive Workers Rarely Seen

The colonies are made up of both wingless and winged individuals, the grayish white, soft-bodied, wingless workers are the destructive form. These workers make the excavations and live underground, shun the light and are therefore rarely seen. Always coming up thru underground passages, they work in the interior of the wood, and leave intact a protective outer shell, so that the damage is often unsuspected until beyond repair. They gain entrance to buildings thru wood which comes in contact with the ground. Flooring and other stationary woodwork and furniture frequently become infested when the wooden beams are laid directly on the earth or in moist concrete and are often reduced to mere shells, the interior being completely honeycombed. Always the ants prefer to work in dark, warm, moist places.

White ants occasionally injure large trees and shrubs.

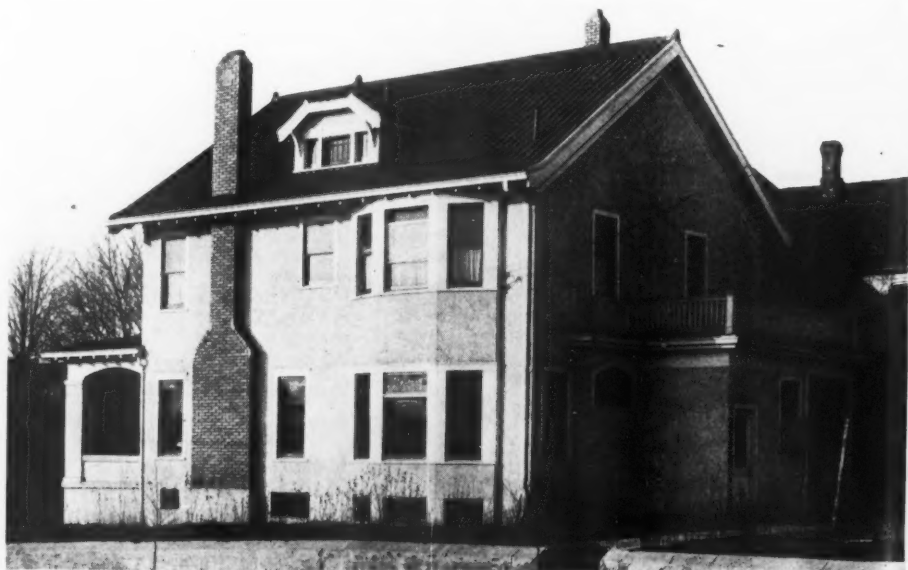
Protecting Woodwork in Buildings

Since white ants are difficult to eliminate from the woodwork of a building when once established, every precaution should be taken to prevent their gaining entrance. Where possible, foundations of buildings should be entirely of stone, brick, or concrete, including stone columns or pillars in the basement to support the floor above. Make the floors and walls in the basement or cellar of concrete and lay the floors on a gravel base. Where stone or concrete foundations are impracticable, use timber impregnated with coal-tar creosote.

Lay basement window sills and frames over concrete and do not allow the wood work to come in contact with the ground. Never sink untreated timber in the ground or in moist concrete. No wood should be in contact with the ground. Complete dryness of the foundation and basement walls is an important means of rendering buildings safe from attack; therefore, provide for air spaces between the ground and wooden flooring, and see that the basement floors are well-drained.

Eliminating Ants from Buildings

If white ants gain access to buildings, examine the foundation timbers and other woodwork in the basement and determine the point of entrance. After removing the damaged wood, drench the ground with kerosene oil, then replace damaged timber with rock, brick, concrete, or metal work, or if timber must be used, see that it is treated with coal-tar creosote. Since ants always require access to damp earth, shut off this source of moisture and the insects will not be able to extend their work further and will perish.



A Good Example of Fire-Resistive Home Construction. This House Is of Stucco Over Metal Lath, with a Metal Roof, and Is of the Type of Architecture That Is Popular with Those Who Build a Home That Is Readily Salable if a Sale Becomes Necessary.

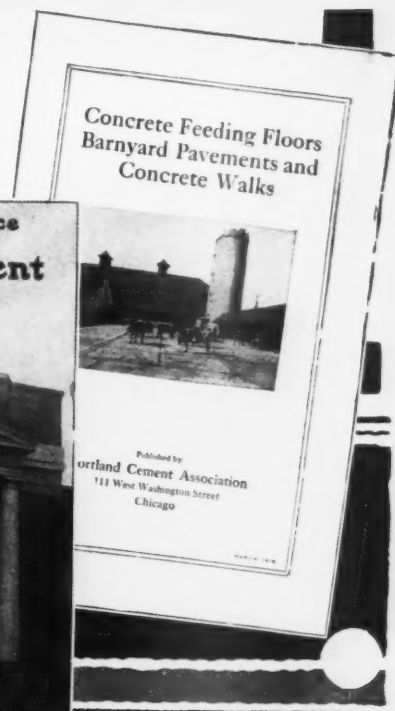


Concrete Houses
and Why to Build Them

"Concrete for Permanence"

Published by
Portland Cement Association
111 West Washington Street
Chicago

NEW YORK
PITTSBURGH
ST. LOUIS
CHICAGO
DETROIT
CINCINNATI
KANSAS CITY
PHILADELPHIA
ST. PAUL
SPRINGFIELD
WASH. D.C.



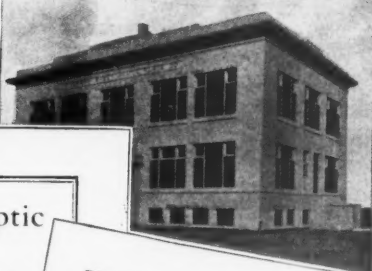
**CONCRETE
FOUNDATIONS**



Published by
Portland Cement Association

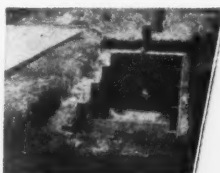
Concrete for Permanence

**Concrete
Building Block
and Brick**



**Concrete Septic
Tanks**

A sanitary method of sewage disposal where the advantages of a city or town sewerage system are not available.



Published by
Portland Cement Association

Offices at
ATLANTA CHICAGO CINCINNATI KANSAS CITY
DETROIT INDIANAPOLIS MILWAUKEE
PHILADELPHIA ST. LOUIS
SPRINGFIELD WASHINGTON

Concrete for Permanence

**Concrete Troughs
Tanks
and Cisterns**



Published by
Portland Cement Association

Use More Concrete

Blueprint plans of hog, poultry, milk and smoke houses, septic tanks, manure pits, hog wallows and similar concrete structures for town or country can be had for the asking.

Our many booklets, only a few of which are illustrated here, will give you other suggestions for using more concrete. These also are free.

What would you like to know about concrete and how to use it? Simply write our nearest District Office.

PORTLAND CEMENT ASSOCIATION

Offices at

ATLANTA
CHICAGO
DALLAS
DENVER
DES MOINES
DETROIT

HELENA
INDIANAPOLIS
KANSAS CITY
LOS ANGELES
MILWAUKEE
MINNEAPOLIS
NEW YORK

PARKERSBURG
PITTSBURGH
SALT LAKE CITY
SEATTLE
ST. LOUIS
WASHINGTON

Concrete for Permanence

Design for a Combination Cargo and Recreation Pier

A COMBINATION recreation and cargo pier is soon to be constructed by the City of Philadelphia at a historic spot on the Delaware river—Penn Treaty park where William Penn, the founder of the city, made his famous treaty with the Indians. The pier will virtually extend from the park.

The substructure will be of concrete on timber and piles, cut off at the low water level, and the superstructure will be of concrete and structural steel. The first deck will be used for cargoes. It will be 70 feet wide by 300 feet long, designed to carry a live load of 400 pounds per square foot. This will be paved with asphalt and enclosed on the dock sides with sliding doors 20 feet wide and 15 feet high. A wharf drop will be provided on the outshore end for the use of steamboats in unloading passengers or freight.

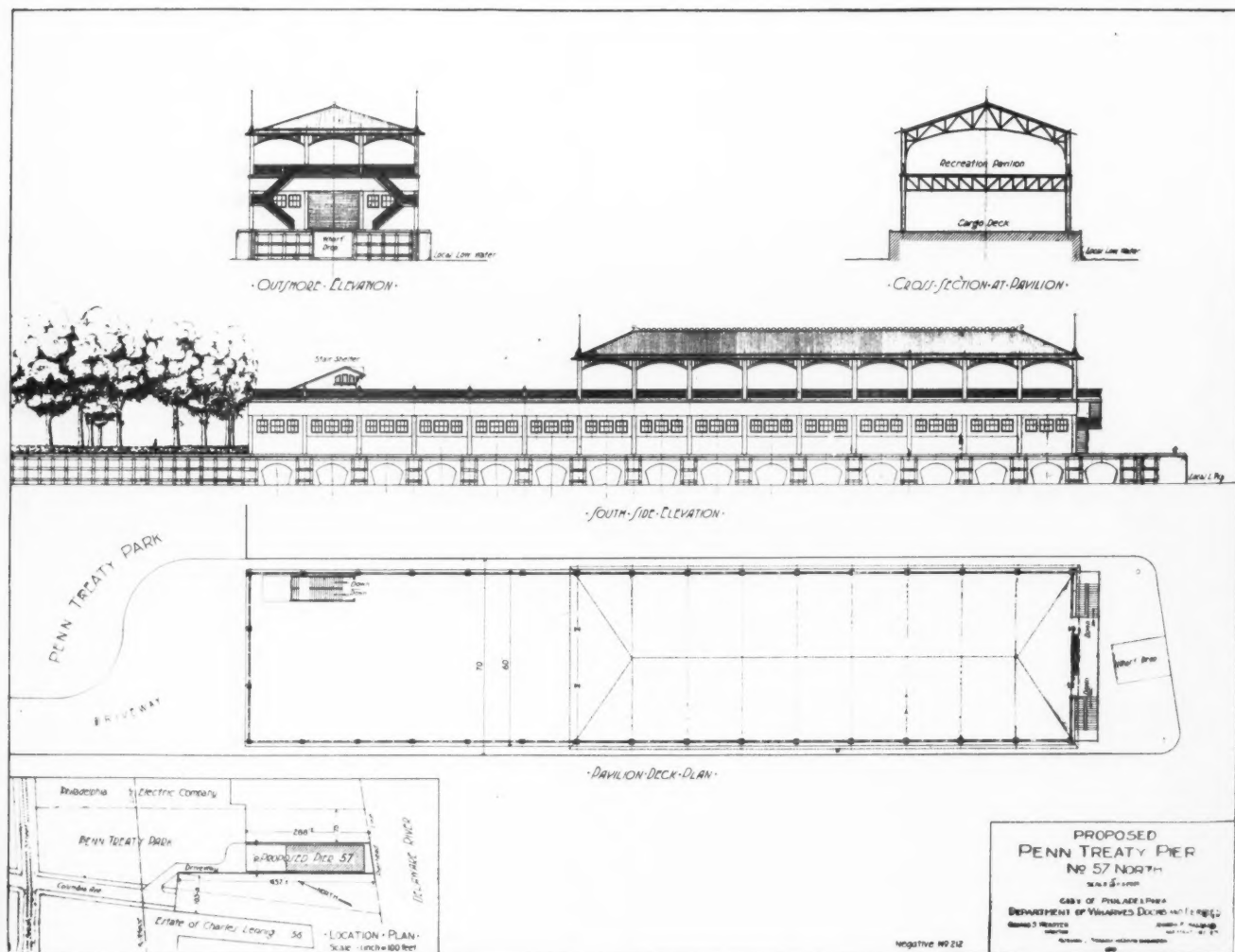
The second deck will be 60 feet wide and 300 feet long. It will be used exclusively for recreation purposes. It is designed to carry a live load of 125 pounds per square foot, paved with asphalt and provided with an open pavilion at the outshore end 60 feet wide by

180 feet long. Access to the recreation deck will be by means of an enclosed stairway at the inshore end leading directly from the park. Additional means of reaching the recreation deck will be afforded by two more stairways, both open at the outshore end.

The main approach to the pier for teams will be by way of a 20 foot driveway. This will extend over one corner of Penn Treaty park.

Another notable example of a combined cargo and recreation pier is the Municipal Pier, Chicago, which is wholly of concrete.

This idea of combining utility with recreation in the piers has taken hold in almost all cities that have either fresh or salt water harbors, or are on navigable streams. While usually they are large building projects, the same plan can be followed in the smaller cities, where the needs of either the people or the shippers are not so great. Contractors in such cities have profitable work ahead of them, once the idea is suggested and adopted.—JOHN F. McCLARREN.



Elevations, Cross-Sections and Plans of the Combined Recreation and Cargo Pier to Be Constructed by the City of Philadelphia at Penn Treaty Park, on the Delaware River.

PROUD OF YOUR TOOLS ?

You surely are, if they are up to the standard you find in

SAND'S BLACK WALNUT LEVELS

Sand's Black Walnut Levels are made for discriminating Builders—men who know what a level should be and men who appreciate quality and accuracy in their tools.

Sand's levels are the standard of accuracy. Not only are they the most accurate but they are the easiest to read. In fact if your level isn't a Sand's you can't understand the feeling of pride and satisfaction the good Builder has in knowing that his Sand's level is the best he could have purchased at any price.

Your Dealer Can Tell You About Them

Go to your dealer, ask him to show you a Sand's Black Walnut Level—They have two and four plumbs, all have two levels, and you can use either end or edge for plumb or level.

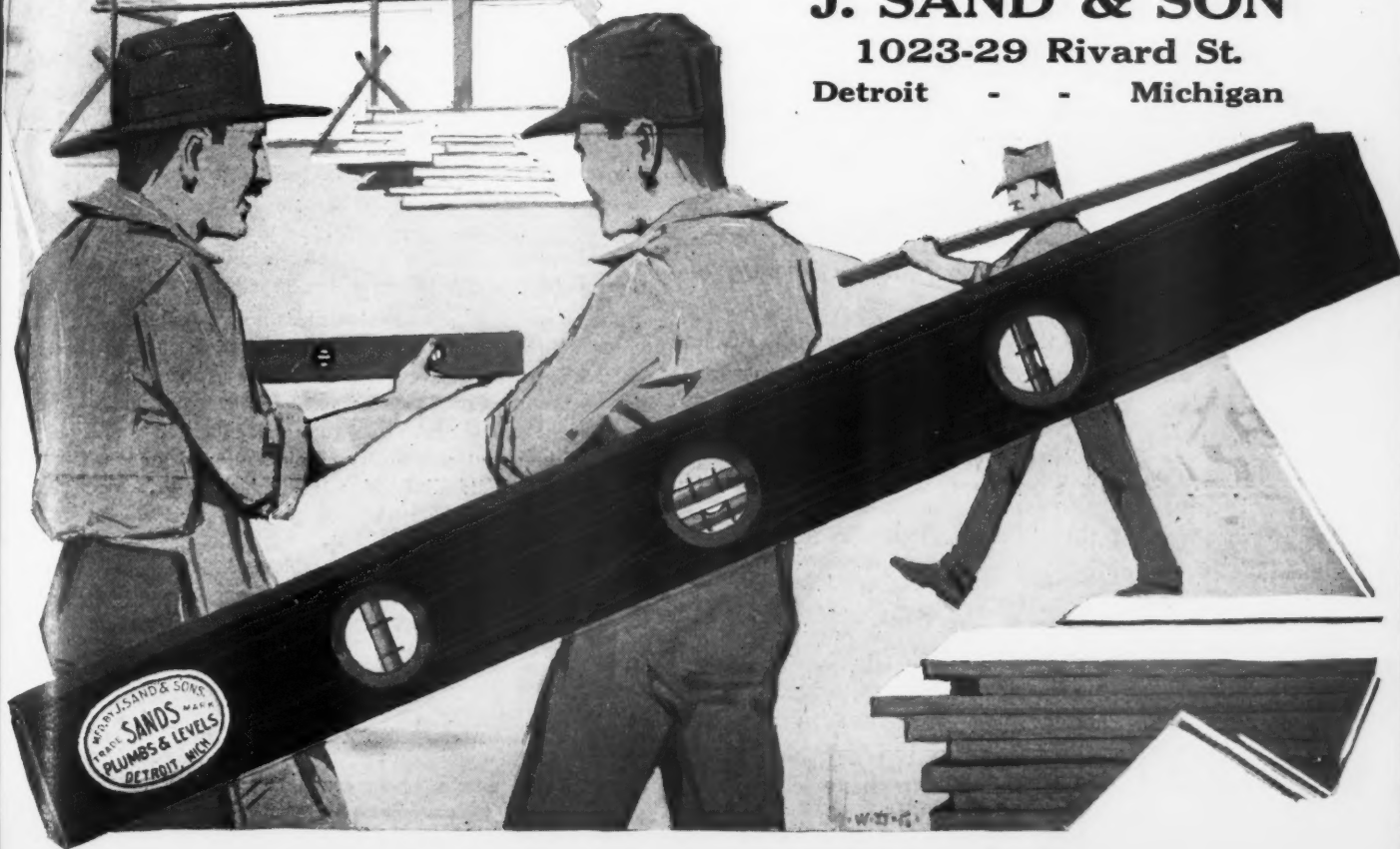
Your Dealer knows Sand's levels—knows their excellent qualities. In case he hasn't any in stock, write us direct. We want to send you our catalogs describing our full line of levels especially our Famous Six Glass Aluminum Levels.

Get acquainted with Sand's accuracy and quality. It will open your eyes to what you have been missing.

J. SAND & SON

1023-29 Rivard St.

Detroit - - Michigan



U. S. Department of Public Works Proposed

CONGRESS ASKED TO AUTHORIZE NEW DIVISION OF EXECUTIVE PART OF GOVERNMENT THAT WILL TAKE OVER ARCHITECTS' OFFICE

FAR-REACHING changes in the executive machinery of the Federal government are proposed in bills introduced in each house of Congress June 25. The U. S. Department of the Interior will become the Department of Public Works if the legislation proposed is enacted. The main idea is to assemble all engineering activities of the Government in one department.

Such bureaus of the Interior Department as are non-engineering in character are to be placed under the jurisdiction of appropriate departments, while engineering bureaus from other departments are to be included in the Department of Public Works. The bill proposes that the Patent Office is to be removed from the Interior Department and placed under the Department of Commerce. The Bureau of Pensions is assigned to the Department of the Treasury. The Bureau of Education goes to the Labor Department. The Bureau of Indian Affairs also is transferred to the Department of Labor, with the proviso that the engineering and construction work and the land and mineral surveys now performed under the direction of the Bureau of Indian Affairs are to be prosecuted under the Department of Public Works. St. Elizabeth's Hospital and the Freedman's Hospital in Washington are assigned to the Treasury Department. Columbia Institution for the Deaf and the Howard University go to the Bureau of Education under the provisions of the bill.

Architects Transferred to New Department

On the other hand, the Department of Public Works is slated to absorb the Supervising Architect's office of the Treasury Department; the Construction Division, River and Harbor Improvements, Mississippi River Commission, and California Debris Commission of the War Department; the Bureau of Standards and the Coast and Geodetic Survey of the Department of Commerce; the Bureau of Public Roads and the Forest Service of the Department of Agriculture.

The bill provides that the Secretary of Public Works "shall by training and experience be qualified to administer the affairs of the Department and to evaluate the technical principles and operations involved in the work thereof." The measure excepts from the foregoing provision the cabinet officer who is at the head of the department at the time of the passage of the bill.

Division of the Work

Four Assistant Secretaries, each to be paid \$7,500 per annum, are provided and their duties outlined. One Assistant Secretary is to have administrative jurisdiction over all matters of engineering design and construction. Another is to have charge of

architectural design and construction. The third is to have jurisdiction over all scientific work and surveys, while the fourth Assistant Secretary is to be in immediate charge of all land and legal matters. The Assistant Secretaries are charged with the duty of co-ordinating and bringing into efficient relationship all the activities of the department so that it may be harmoniously and efficiently administered.

An important feature of the bill is the proviso: That engineer officers of the U. S. Army detailed on non-military work are to be assigned by the Secretary of War to like duties under the new department, for not over two years. This enables the Secretary of Public Works to make gradual transfer of improvements and instrumentalities to civil administration without detriment to public interest. Members of the Corps of Engineers may, under the direction of the Secretary of Public Works, be detailed by the Secretary of War to temporary duty in the new department for such instruction, training and experience as is desired.



Ready-Mixed or Self-Mixed Paint?

SOME years ago master painters and journeymen looked askance at factory mixed paints. They regarded them as something prepared for the amateur; something to enable the home owner to do his own painting and take work away from them.

However, 60 per cent of the master painters have seen the light, and they are still coming strong. Forty per cent are still mixing white lead and oil and pigments, and imagining they are doing the consumer a favor.

It is hardly a fair proposition to compare a high-grade ready-mixed paint with hand-mixed lead in oil, as the advantages are so obviously in favor of the machine-made, factory-made product. It has been proven conclusively, time and time again that machine-made paint will cover as great as 30 per cent more surface than lead and oil; that it is by far more durable due to the care taken in eliminating chemical action; that it has greater uniformity in color and body due to perfected and established formulas, and lastly, that it presents a perfect surface for repainting.

The 60 per cent of master painters now using factory-mixed paints will bear out this statement, and their answer in favor of such product will be that it enables them to give their customers (the property owners) entire satisfaction; that it enables them to do more work, inasmuch as the labor of compounding and mixing is eliminated, and above all, the assurance and standing of a reputable manufacturer back of the product used.



DISCUSSION of business problems is good for everyone. As argument begets thought. Bring your problems to the Correspondence Department and start an argument. You and the whole AMERICAN BUILDER family will be the better for it.



THERE are right and wrong ways of doing everything. When in doubt about your method, ask your fellow builders thru the Correspondence Department.

HOLLAND -- FURNACES



"Make Warm Friends" Are You and Your Customers Taking Advantage of Holland Service?

WE have in our employ the best heating engineers in the country.

When you send your plans to us they receive the careful attention of engineers that have already satisfied 100,000 customers. They carefully work over your plans, making installation easier for you and assuring your customer the best type of heating plant.

• Successful Contractors •

know, that to maintain their reputation, the quality of the products they represent must be beyond question. They must offer the consumer perfect satisfaction. Holland Furnaces do this. The Holland cone-center grate prevents formation of clinkers and compels the fuel to roll to the walls of the fire pot. Having the hottest fire next to the castings creates strong and even radiation. The Holland pivot grate works so easily it can be shaken with one finger.

Special Proposition To Contractors and Builders

We have the best furnace proposition in the country for live, progressive builders. Write us today. We want to tell you about it in detail.

THE HOLLAND FURNACE CO.

World's Largest Installers of Furnaces

2 Factories
HOLLAND,

128 Branches
MICHIGAN



NEWS OF THE FIELD

Aberthaw Opens Atlanta Office

The Aberthaw Construction Company, of Boston, Mass., has opened a permanent office in Atlanta, Ga., which will be under the direction of N. McL. Sage.



Oshkosh Manufacturing Co. Announces Completion of New Service Plan

A news item, which will probably be of more than usual interest to the building industry, is the announcement by the Oshkosh Manufacturing Co., Oshkosh, Wis., of the company's new service plan. The company has just completed the establishment of a chain of service stations thruout the United States for the benefit of its patrons. These service stations carry a complete line of repair parts for all Oshkosh machines and maintain fully equipped shops for either repairing or completely rebuilding Oshkosh machinery. An engine and machinery expert is in charge of each repair shop.

Besides these fully equipped service stations a large number of sub-stations have been established. Not all of the sub-stations carry a complete line of parts or maintain repair shops, but if they do not they can get this service within a very short time. It is the claim of the Oshkosh Manufacturing Co. that now it does not make any difference where an owner of Oshkosh equipment may be located they are prepared to render immediate service, over night at the longest.

J. W. Wooley, general sales manager of the Oshkosh



J. W. Wooley

Manufacturing Co., in making this announcement, said: "It has always been our ambition to perfect this service idea. We have felt that service is the one big thing needed in the contracting business. We know that now no matter how well machinery is built, and we build ours as well as forty years' experience could teach us, there are times when repairs are needed badly. A discharge chute wears out or a

sprocket wheel is broken in an accident. Right then the most important thing in the world to that contractor is the needed repair. If he can get it at once everything is lovely, but if he has to wait three weeks till it arrives from the factory he generally gets pretty much disgruntled with the firm that sold him a mixer and then forgot him.

"With our new service system the owner of an Oshkosh machine can get service right when he needs it. All he has to do is telephone his dealer. The needed repair will be there in a few hours, twenty-four at the very longest, and the wheels are turning again. If he happens to need an expert, engine man there is one available.

"We believe that such service is bound to mean satisfied customers and we feel that this is about the most important step we have ever taken."

This service seems to be rather an innovation in the contracting field and should prove highly advantageous to owners of Oshkosh equipment.



Tile Association Offers \$100 for Trade Mark

The Hollow Building Tile Association, composed of a number of the leading hollow building tile manufacturers of the United States, is going to adopt a trade mark and slogan to be used by the association and its members. To get suggestions for the slogan and trade mark, the association has offered a \$100 Liberty Bond as a prize to the person submitting the design selected. The board of directors of the association will act as judges and pick the winning design. The contest is open to everyone. The competition closes September 15. In its announcement of the prize offer, the association says:

"We want a trade mark or 'coined word' for hollow building tile which will interpret the true measure of the value of the material itself, since it will become a potent part of our literature and extensive advertising in trade papers, farm papers, newspapers and national magazines. We want a trade mark that wherever seen, in printed form or on the material itself, will stand for the things the product will do and be a guarantee of the complete co-operation and service of the association which stands sponsor for it." The designs will be received at the association's office, 111 West Washington Street, Chicago.



W. I. Alling Becomes Field Sales Manager for Oshkosh Manufacturing Co.

In carrying out its idea of complete service to both the dealer and user of Oshkosh concrete machinery, the Oshkosh (Wis.) Manufacturing Co. has recently created a new position, that of field sales manager, and has appointed W. I. Alling to handle that department.

"Bill" Alling is well known in the contractors' equipment field. He has for years been associated with some of the best known firms in this line of work and has held many responsible positions. He was for sometime in the sales department of the Eureka Machine Co., selling contractors' equipment of various kinds and types. Prior to his connection with the Oshkosh firm he was sales manager of the contractors' equipment department of the Lansing Company.

Mr. Alling's duties will consist, not only of managing the field sales of the Oshkosh Manufacturing Co., but he will also have direct charge of the field service of this firm.

Government Sale of (New) Woodworking Machinery

Sealed bids will be opened 10 A.M., August 26, 1919, at War Department, Surplus Property Division, Munition Bldg., Washington, D. C., for any or all of the following:

- | | |
|--|---|
| 1—KNIFE GRINDING MACHINE with motor, No. D-26, American Machinery. | 1—VERTICAL HOLLOW CHISEL MORTISER, with motor, No. 238, Greenlee. |
| 1—KNIFE GRINDER with motor, No. 28 Yates. | 1—DOUBLE END CAR TENONER, with motor, No. 540, Greenlee. |
| 2—EXTRA HEAVY KNIFE GRINDERS, 36" Yates. | 5—HAND JOINERS, 12", No. 199, Yates. |
| 2—RIP AND CROSS CUT SAW SHARPENERS with motor, No. 736 American Machinery Co. | 1—HAND JOINER AND PLANER, 12", with motor, No. 199, Yates. |
| 3—SINGLE SURFACERS with motor, No. 340, Fay & Egan. | 1—PLAIN RIP SAW BENCH, 20", with motor, No. 402, Greenlee. |
| 3—SINGLE SURFACERS with motor, No. 152, Yates. | 6—COMBINATION BAND RIP AND RESAWS, with motor, No. 282, Yates. |
| 2—HEAVY HORIZONTAL HOLLOW CHISEL CAR MORTISERS, with motor, No. 216, Greenlee. | 2—SPINDLE VERTICAL BORING MACHINE, with motor, No. 353, Yates. |
| | 1—COMPLETE SAW FILING OUTFIT, Yates. |

Full particulars and special bid forms may be obtained at the above office or Zone Supply Offices, attention Surplus Property Officer, in the following cities: Boston, New York, Philadelphia, Baltimore, Newport News, Atlanta, Jeffersonville, Ind., Chicago, St. Louis, New Orleans, San Antonio, Omaha, El Paso, San Francisco.



W. I. Alling

traveling from agency to agency, explaining and amplifying the service and co-operative plans, not only to Oshkosh dealers and representatives, but to contractors as well.

EVERYONE connected with the building industry is active now, altho active is a word that is not exactly strong enough to describe just how busy builders are. The number of buildings that will be erected during this and the next few years, and the amounts of money that will pass thru the hands—some to stick in passing—of contractors, architects, material dealers and manufacturers will be the greatest in history.

Just Like the Others

"There's a waiter in our restaurant named 'Scales.'"

"Ah! Expects every one to tip him, I suppose."—*Boston Evening Transcript.*

CO-OPERATION of the AMERICAN BUILDER family is a fine thing for everybody in the building business. The Correspondence Department offers an opportunity to put this idea of co-operation into play. Send in a letter telling fellow builders the valuable things you have discovered that will help them.

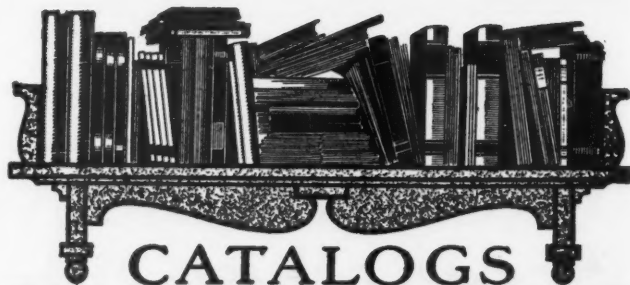
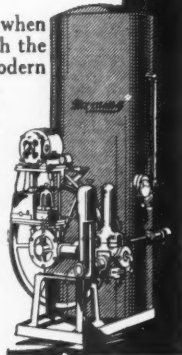
Contractor and Owner Both Profit

ADVISE the installation of a water system when your client is building. Putting it in with the plumbing saves money and assures a more modern and enjoyable home. Suggest the most economical and efficient Deming system to fit his special needs and take the order and extra profit yourself.

Don't miss the next opportunity. Send for complete information, now!

THE DEMING CO., 99 Depot St., Salem, O.

Deming
WATER SYSTEMS



CATALOGS BULLETINS & BOOKS RECEIVED

The following literature, dealing with subjects of interest to builders, is now being distributed:

"The Backbone of a Wall" is the title of a folder issued by the General Fireproofing Company, Youngstown, Ohio. The circular describes "Self-Sentering" and "Trusset" expanded metal reinforcing materials for bearing and curtain walls and is well illustrated.

A list of books dealing with industrial housing has been issued by the United States Department of Labor under the title, "Selected Bibliography of Industrial Housing in American and Great Britain During and After the War." The pamphlet, which contains twenty pages, is a fine index to works on this subject that will be found in public libraries.

"Americanization" is the title of a new paper being issued by the Americanization Department of the U. S. Department of Labor. The publication is devoted to promoting the work of teaching American ideals to the foreign-speaking population of this country.

"White Ants as Pests in the U. S. and Methods of

Worth Much to You

Morrill

Saw Set

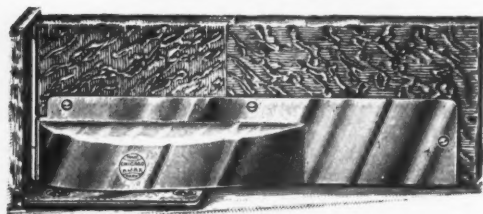


All master carpenters are using this Saw Set. In one operation it takes out the wrong set and puts in the right one. Write for FREE booklet "Saw Points." It tells how to properly joint, set and file hand saws.

CHAS. MORRILL

94 Lafayette Street
NEW YORK

TRADE
CHICAGO
MARK
SPRING HINGES



Appearance — Economy — Durability The "AJAX"

In the "Ajax" we offer a Floor Spring Hinge with Ball Bearings at the top of the Hinge, away from dust and moisture.

Alignment Adjustment that is easily accessible.

Roller Bearings for the piston, to overcome friction.

Durability, Economy and Appearance, backed by our REPUTATION.

Send for Catalogue C 36.

Chicago Spring Butt Company,
CHICAGO NEW YORK



What Is It Going to Cost?

It is the answer to this all important question that influences the decision of the average builder, and at the same time measures your volume of business and your ultimate profits.

Because of the existing high cost of materials and labor, the prospective builder of today is deeply interested in the prices of various building materials compared with those of pre-war times. In this respect we particularly call your attention to

KELLASTONE IMPERISHABLE STUCCO

The cost of KELLASTONE has increased less than any other building material. The increased price today is only 12% more than in 1913 and yet we have religiously adhered to our uniform high standard of quality and kept faith with the trade in every respect.

From a standpoint of either price, beauty or durability, KELLASTONE qualifies for every type of building. It's the original all mineral magnesite stucco; does not contain a particle of lime, gypsum, Portland cement, hair, cork, wood, flour or any other ingredient that rots or crumbles.

KELLASTONE is a big asset in creating business, every job finished is a credit to your good name. Meet us half way and permit us to submit the details of our liberal co-operative selling plan. Share the profits of our Fall advertising campaign that is now in action.

NATIONAL KELLASTONE COMPANY
1315 MALLERS BUILDING CHICAGO, ILLINOIS



Lesson in Plan Reading **FREE!**

Send now for this **FREE** lesson which we will send to prove how quickly you can learn Plan Reading by our new, easy method. Not a penny to pay for this lesson. Just ask for it. Without a good knowledge of plans your opportunities are limited. At work you don't get the chance to study blue prints or to have their meaning explained. We make the chance for you. We place in your hands plans used on actual construction by contractors in Chicago and other cities, and you get lessons by men in charge of building work who will help you at every step and make you an expert plan reader.

Builders' Course On Easy Payments

Our Builders' Course gets right down to the things you need to know. And you can get it on easy payments. A small first payment when you enroll—then payments monthly—so small you will never feel the cost. At least write and find out what this course really offers and how you can make more money by learning what we will teach you in a short time.

Learn By Mail

Use your spare time at home to learn how to be a better workman, a better foreman or a better contractor. Even after you complete the course you have the privilege of consulting us when you want suggestions. We will always be ready to help you.

Some Things We Teach

Plan Reading Use and meaning of all the lines. Plans and elevations. Reading dimensions. Detail drawings. Laying out work from plans. Practice in reading plans from basement to roof, etc., etc.

Construction Brick work, stone work, carpentry, plans and specifications. Every detail explained for residences, office buildings, factory buildings, school houses, apartment buildings, bank buildings, etc., etc.

Estimating Figures on every kind of building work fully explained. Labor and material. Problems worked out from plans. Practical builders' methods studied from plans and specifications of actual building of every kind.

Arithmetic A complete course arranged especially for builders and contractors.

Architectural Drafting Also other branches of drafting. Send for special catalog on these courses.

Send the Coupon

Get this information now. Learn how to make more out of your work or out of your business by knowing more about it. All this information is free. Send for Free Lesson and this information—now. Just send request on the coupon below.

-----Chicago Technical College-----

836 Chicago "Tech" Building

Chicago, Illinois

Without obligation on my part, send me the Free Lesson in Plan Reading, also information on your Builders' Course in Plan Reading, Estimating, etc.

Name

Street

City

State

Present Occupation

"Preventing Their Damage" is the title of Farmers' Bulletin No. 1037, issued by the United States Department of Agriculture. The bulletin describes the construction methods that will prevent these pests from damaging buildings.

"Concrete Swimming and Wading Pools" are described and illustrated in a sixteen-page booklet on that subject, issued by the Portland Cement Association. Accompanying the illustrations and descriptions are instructions in constructing these outdoor and indoor tanks.

"Successful Methods" is the name of a new illustrated magazine devoted to industrial construction, road building, engineering and mining, published by the Manufacturers' Publicity Bureau, Chicago. The first issue contained forty-eight pages and cover and was well illustrated.

"Sawmill Machinery" is the title of Catalogue No. 62, of the A. B. Farquhar Company, York, Pa. The catalog, which contains twenty pages and cover, is devoted to the sawmill equipment the company manufactures and is well illustrated.

"Making Money Off the Wood Lot" is the title of a twenty-page and cover booklet issued by the American Saw Mill Machinery Company, New York City. The booklet points out the chances for profit by operating a portable sawmill on the smaller wood lots of the country and is illustrated with views of these plants in operation. "Sawmill and Woodworking Machinery" is the title of this company's fifty-six-page catalog.

"Walter Concretetile, a Roof for All Time," is the title of a forty-page and cover booklet issued by the Walter Concrete Machinery Co., Indianapolis, Ind. The booklet describes the concrete tile-making machinery the company manufactures and a number of illustrations show how and where the tile is used.

Weather strips of all kinds are described and illustrated in a folder issued by W. J. Dennis & Co., Chicago, manufacturers of weather strips.

"Town and Country Buildings," a thirty-two page and cover booklet issued by the Southern Pine Association, New Orleans, contains designs for homes, garages, barns and other buildings. The booklet is exceptionally interesting to architects, builders and lumber dealers, as there are many good building suggestions contained in it.

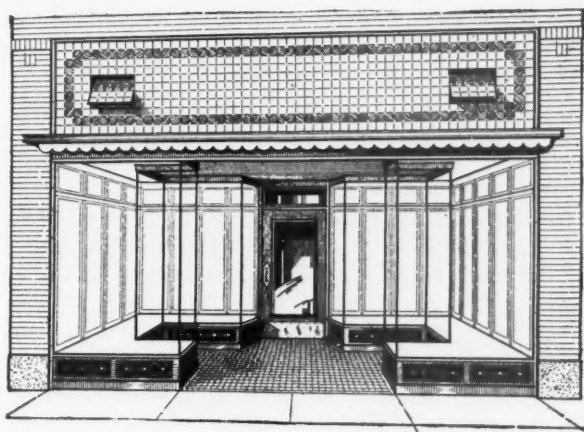
"Evans 'Almet' Fire Doors and Shutters," is the title of a catalog on these subjects, issued by the Merchant & Evans Co., Philadelphia. The booklet is well illustrated, showing various types of doors and shutters. It also contains descriptions of the "Star" ventilators the company manufactures.

Horizontal furnaces and radiator and register shields are described and illustrated in a series of folders issued by the W. H. Johnson & Son Co., Indianapolis, Ind., the manufacturers. A number of artistic radiator and register shields are shown.

"Peerless Ventilators" is the title of a sixteen-page and cover, well illustrated booklet issued by the Auto Utilities Manufacturing Co., Chicago. The booklet describes the ventilators for factory buildings and street and steam cars that this company manufactures.

Spring hammer drills are described and illustrated in a series of folders issued by the Daugherty-Smith-Phillips Co., Chicago, manufacturers of Phillips spring hammers and drills, for use by builders and plumbers of all sorts of work. Illustrations show how the drills are used.

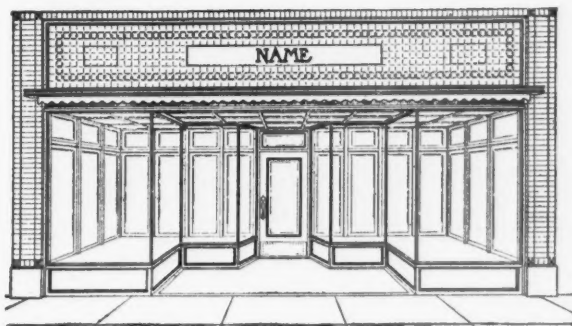
How to build concrete buildings is shown by text and illustration in No. 17 of Alpha Aids, issued by the Alpha Portland Cement Co., Easton, Pa. As usual, this publication contains a large amount of valuable information for



Let Kawneer Store Fronts Help Build Your Reputation

Contractors everywhere are making good profit on store front construction work.

Those who are installing Kawneer Store Fronts—the original, all metal, resilient grip construction—are able to point with pride to their work. Every job pulls others.



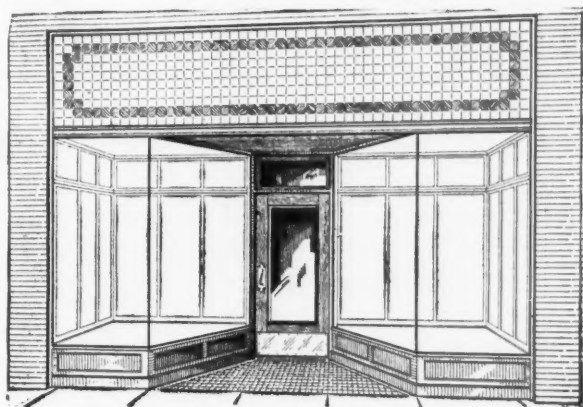
Kawneer STORE FRONTS

More than 70,000 Kawneer Fronts in all parts of the country. The best looking fronts in your town likely are Kawneer construction.

Why not investigate this profitable business? Any contractor who can build a house or a store building can make money installing Kawneer Store Fronts. Fill out the coupon at once and make a start on this profitable business.

Send for this Book of Designs

Every builder should have a copy of this valuable book for his files.



Write Us About Your Prospects

If you know of any store front prospects, write us and let us help you close them.

Kawneer Mfg. Co.

1526 Front Street
NILES, MICHIGAN

**Kawneer
Mfg. Co.**

1526 Front Street
Niles, Mich.

Please send me your new
Book of Designs.

Name.....

Address.....

SEND IN THIS COUPON TODAY

the contractor who handles concrete work. A supplement deals with permanent enclosure walls.

Saws of every description are shown in the new catalog of Henry Disston & Son, Philadelphia. The catalog contains 242 pages and hundreds of illustrations showing the saws the firm manufactures.

"Good Homes and How to Paint Them," is the title of an exceptionally artistic and instructive booklet issued by E. I. Du Pont de Nemours & Co., Wilmington, Del. Colors and materials are shown for various types of architecture, and color plates illustrate how the homes will appear after painting.

"Painting the Aeron Way" is the title of a folder issued by the DeVilbiss Manufacturing Co., Toledo, Ohio. The folder is well illustrated with halftone reproductions of photographs showing the portable painting equipment the company manufactures in use on various kinds of buildings.

"The Influences of Very Low Percentages of Copper in Retarding the Corrosion of Steel" is the title of an address made by D. M. Buck, M.E., before the American Society for Testing Materials. The address has been published in book form by the American Sheet and Tin Plate Co., Pittsburgh. The book contains 16 pages and cover and is well illustrated.

"What Is Lumber?" is the title of a most artistic booklet issued by the General Lumber Co., Milwaukee, manufacturers of Rite Quality lumber. Full page illustrations made from photographs taken in the north woods accompany the text, which is by Harry E. Christiansen. The booklet contains 36 pages and cover.

"McCray Refrigerators for Hotels, Restaurants, Clubs, Hospitals and Institutions" is the title of a new 52-page and cover catalog issued by the McCray Refrigerator Co.,

Kendallville, Ind. The catalog contains text and illustrations describing the various types of refrigerators the McCray company makes.

Water-proof buildings, made so by the use of I. W. P. Hydraliquid, are pictured and described in a 76-page and cover booklet issued by the Imperial Water Proof Co., Chicago. The illustrations show many buildings that have been made water-proof by the company's product, and specifications for its use.

A detachable body to fit any motor truck is described and illustrated in an 8-page and cover booklet, issued by the American Truck Body Co., Martinsville, Va. The illustrations show how readily adaptable and efficient these bodies are in handling building materials.

"Kennedy Cork Tile Floors" is the title of a booklet issued by the David E. Kennedy Co., New York and Chicago. The booklet contains 40 pages and cover and is exceptionally well illustrated with interior views of buildings where this company's floor materials are used.



BUILDING activity means active builders; active builders mean busy material dealers; busy material dealers mean prosperous manufacturers; prosperous manufacturers mean well-paid workmen, and well-paid workmen build homes. Thus does prosperity promote prosperity.



SKETCHES illustrating your questions to the Correspondence Department are a great help to those who are kind enough to help you with your problems. Make a rough sketch. The AMERICAN BUILDER architectural department will redraw it for publication.



*Stained with Cabot's Creosote Stain
C. M. Hart, Architect, Bay Shore, N. Y.*

Stained Shingles

*The Warmest, Most Artistic and Most Economical
of all House Finishes*

Wood shingles are two or three times warmer than the gummed paper substitutes, and they are cheaper, last longer and are incomparably more artistic and attractive. When stained with the soft, moss-greens, bungalow-browns, tile-reds and silver-grays of

Cabot's Creosote Stains

they have a richness and beauty of tone that no other finish can equal and the creosote thoroughly preserves the wood. Use them also on siding, boards, sheds and fences. Anyone can apply them with best results at least expense.

Cabot's "Quilt"

makes floors and partitions sound-proof by breaking up the sound-waves and absorbing them. It makes walls and roof cold- and heat-proof by a cushion of minute dead air spaces that prevents the conduction of heat. From 28 to 50 times as efficient as cheap building paper.

*You can get Cabot goods all over the country
Write for samples and name of nearest agent.*

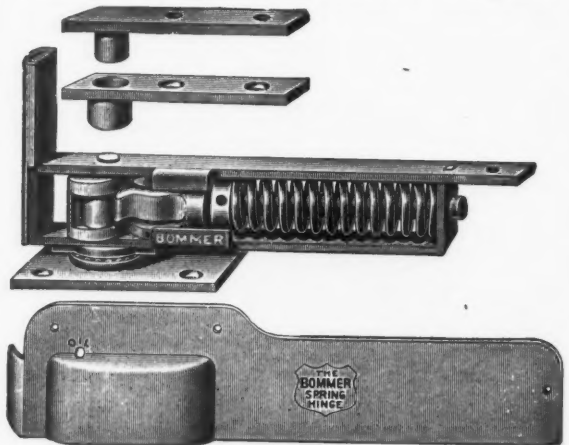
SAMUEL CABOT, Inc.

Manufacturing Chemists BOSTON, MASS.
1133 Broadway, New York 24 W. Kinzie St., Chicago
Cabot's Brick Stains, Stucco Stains, Conserve Wood Preservatives, Damp-proofing, etc.

BOMMER

Floor Surface Spring Hinge

Double or Shingle Action, Holdback, Ball Bearing. Every moving part of this hinge can be oiled from a single hole on outside of side-plate.



The most durable hinge of its type; holds the door open when swung to 90 degrees at either side

Your Hardware Merchant Can Supply Them

Bommer Bros., Manufacturers, Brooklyn, N.Y.